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THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—30TH YEAR. SYDNEY, SATURDAY, FEBRUARY 20, 1943. No. 8.

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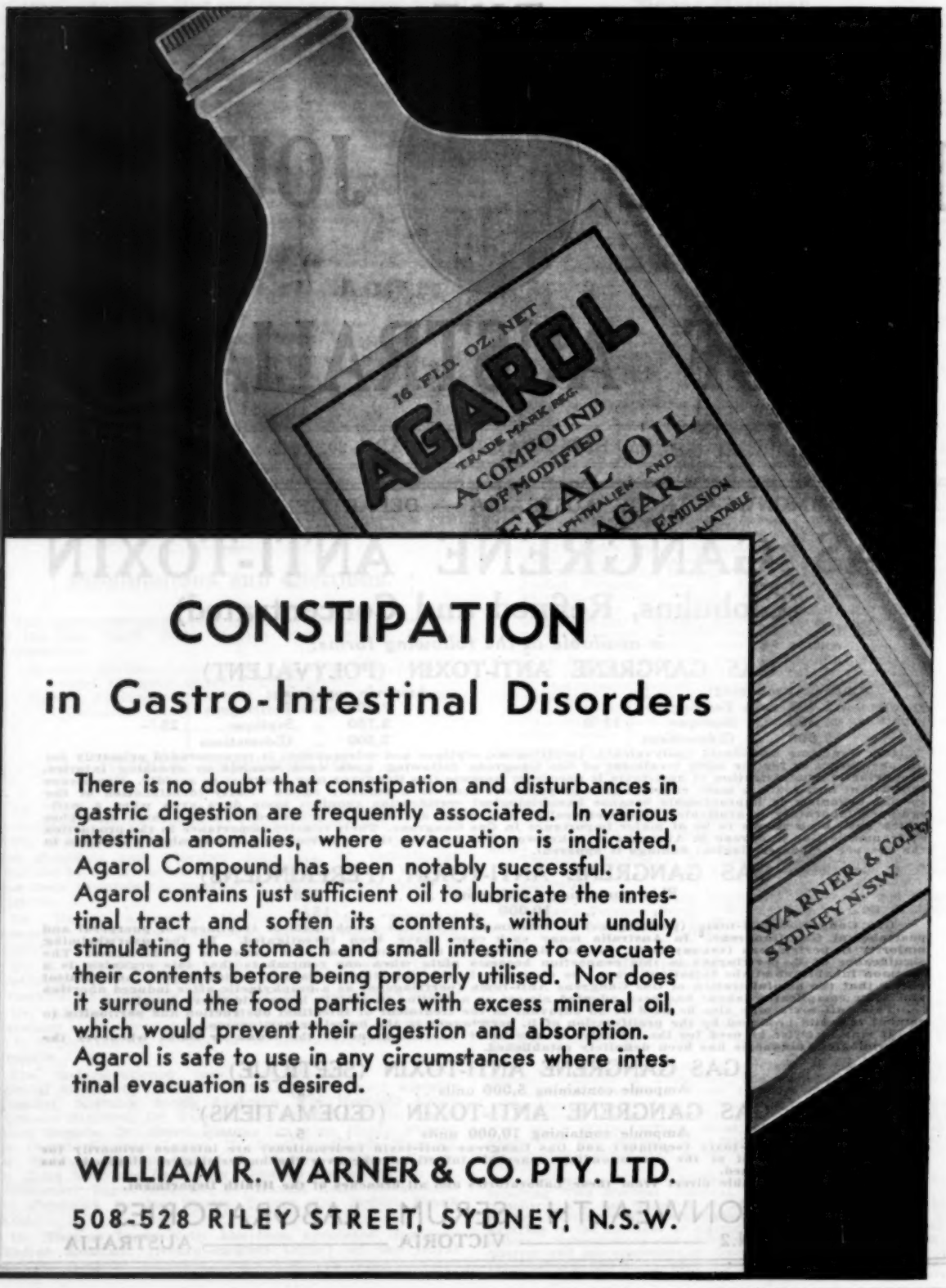

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SUPPLEMENT NUMBER 9 ON WAR MEDICINE AND SURGERY:
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THE DYSENTERIES.[1]

By W. L. CALOV,
Sydney.

Definition.

DYSENTERY may be defined as an infectious disease involving the mucous lining of the large bowel and possibly the terminal part of the ileum in an inflammatory process of greater or less severity and characterized clinically by diarrhœa and the evacuation of slimy bloody stools.

Classification.

The dysenteries are conveniently classified according to their causal organism as shown in Table I.

Some authorities add to this list the helminthic or verminous dysenteries and malarial dysentery. I propose to exclude these. The pseudo-dysenteric symptoms caused by such worms as the three Schistosomes and *Œsophagostomum apiostomum* result from the mechanical effects of the parasites or from polypi produced by them. The so-called malarial dysentery is merely a symptom of pernicious malaria and may be present when the maturation of the subtertian parasite occurs mainly in the vessels of the intestine. Malaria can mimic almost any acute disease.

Introductory Discussion.

Causation of Dysentery.

There are certain factors of ætiological importance common to all the dysenteries.

Food.—Any of the dysenteric organisms may be conveyed by food. It is not the most important medium except in Sonne dysentery, which has been shown to be conveyed by food so frequently as to have become regarded as food poisoning. An epidemic in London in 1933 was caused by the consumption of contaminated pease pudding.

Food may be contaminated by dirty hands or by flies. Salads may come from gardens that have been contaminated by human fæces. In the tropical countries of the South Pacific food that has been touched by the dirty hands of native servants is probably the commonest source of infection of Europeans with bacterial dysentery.

Water.—Water is frequently a source of infection, especially in the tropics. Contaminated wells are particularly dangerous; but streams, even if swiftly flowing, are never above suspicion in tropical countries. Natives in many places have the habit of defæcating in streams.

The great epidemic of amœbic dysentery in Chicago in 1933 was caused by contamination of the water supply of an hotel from the house drain.

Milk.—Milk is not generally regarded as an important source of infection except in Sonne dysentery. It is not important in the South Sea Islands because in those places the dairying industry is negligible. In any place where natives handle milk contamination with dysentery bacilli is likely. In Australia milk may be contaminated after it leaves the dairy; it is a frequent source of bacterial dysentery in infancy.

TABLE I.
Classification of the Dysenteries.

General Type.	Name.	Organism.
Protozoal.	Amœbic dysentery. Balantidial dysentery. Giardial dysentery.	*Entamœba histolytica.* *Balantidium coli.* *Giardia intestinalis.*
Bacterial.	Bacterial or bacillary dysentery.	*Bacterium dysenteriæ* (Shiga). *Bacterium dysenteriæ* (Flexner). *Bacterium dysenteriæ* (Sonne).

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on October 29, 1942.

Direct Contagion.—Transmission of infection direct from person to person is rare excepting in primitive communities.

Carriers.—Carriers are of special importance in the transmission of *Entamœba histolytica*. It is believed that carriers do not harbour dysentery bacilli for long after recovery from the illness. There seem to be no normal carriers of bacteria.

Flies.—Flies are the most important medium for the transmission of bacterial dysentery in Australia and in many other countries. They also convey amœbic dysentery. They feed on fæces containing the organisms, then alight on food for human consumption. They contaminate food by their fæces or by the regurgitation of their gastric contents. Dysentery bacilli and cysts of *Entamœba histolytica* have been found in their intestinal contents. Human fæces can be found in the intestines of flies in any community where sanitation is primitive.

Symptoms and Diagnosis.

Features common to all the dysenteries are diarrhœa, pain, urgency of the call to stool, and the evacuation of blood-stained slimy motions. All these symptoms vary greatly. The diarrhœa in amœbic dysentery may be slight, while in bacterial dysentery it may be almost incessant. Pain is felt below the umbilicus and tends to be diffuse. In long-standing cases it may be localized to the left iliac region. It is important to recognize that the symptoms are related to the large bowel, unlike the diarrhœa of ordinary food poisoning, which is apt to be preceded by pain higher in the abdomen.

It is not usually difficult to recognize dysentery. The symptoms are usually striking. The following may cause some careful thought in diagnosis: ulcerative colitis, carcinoma of the intestine, helminth infestation, malaria, enteritis, melena due to peptic ulceration, and hæmorrhoids. Microscopic examination of the stools will usually give the required information.

Amœbic Dysentery.

Definition.

Amœbic dysentery is a chronic disease of the large intestine, caused by *Entamœba histolytica*, and characterized pathologically by inflammation and ulceration of the mucosa, and symptomatically by bouts of diarrhœa in which the stools contain blood and necrotic debris.

Ætiology.

Season and Climate.—Amœbic dysentery may occur in any climate at any season. It is more prevalent in tropical countries because of the more primitive conditions of hygiene and sanitation there.

Carriers.—Carriers are of great importance in the transmission of this disease. The organisms living and multiplying in the human gut have the ability to form cysts containing, when mature, four nuclei. These cysts are capable of surviving for ten days outside the body if kept moist and cool. When a cyst is swallowed its protective coating is digested and four amœbæ are hatched. Carriers may be apparently well or they may suffer from periodic bouts of diarrhœa.

Age.—Amœbic dysentery is uncommon in very young children because they are less likely to eat contaminated vegetables or to drink contaminated water.

General.—Other factors are mentioned in the general discussion of the ætiology of dysentery.

Pathology.

The essential feature is one of necrosis. The earliest lesion is a small abscess in the mucosa. This bursts into the lumen of the bowel so that a flask-shaped ulcer is formed. In disease of long standing the ulcers may be an inch or more in diameter. Their edges are rolled. Projecting from their bases are masses of yellow, green or black sloughs. Submucous hæmorrhage and hæmorrhage from the bases of the ulcers are common.

Stricture may occur as a result of cicatricial contracture in healing of large ulcers. Adhesions between loops of intestine or between intestine and other viscera may develop. The intestines become thickened and friable. It is important for the clinician to be aware of this in the event of the necessity for abdominal operation. Perforation of the gut may occur.

Symptoms.

The incubation period is variable. In some cases it is a week only; in others it is several months. It has been suggested that the presence of certain bacteria is necessary before the amœba is able to produce symptoms. Dobell has shown that some bacteria favour the growth and multiplication of the organism while others have an inhibitive effect. He states that cysts do not develop or hatch in a sterile medium. Westphal obtained a culture of bacteria from the fæces of a patient suffering from acute amœbic dysentery, and he administered the organisms to a person who had acquired an apparently harmless infection of *Entamœba histolytica*. The patient, as well as a control, who was also fed with the bacteria, suffered from diarrhœa; but on the twenty-third day the patient manifested symptoms of amœbic dysentery.

The disease tends to run a chronic course. In many cases there is an initial bout of severe diarrhœa, followed by periods of comparative normality (there may be looseness of the bowels or actual constipation) alternating with diarrhœa. In other cases there are no severe symptoms; but the patient is in a state of chronic ill health, suffering from abdominal pain or discomfort and occasional or persistent looseness of the bowels.

The stools in acute attacks consist of dark blood and necrotic material mixed with fæces. They have been likened to anchovy sauce, and they really are like it. But a warning is necessary that the diagnosis of amœbic dysentery must not be ruled out because the stools have not this appearance. In many cases they consist of soft fæces, flecked with blood and slime. The stools number from three or four to perhaps twelve a day. The urgent symptoms seen in bacterial dysentery are absent.

The temperature remains about normal in the absence of complications. There are no pronounced signs of toxæmia except in prolonged cases and when such a complication as liver abscess appears. In the course of time the patient, if untreated, becomes emaciated and weak.

The most important feature of amœbic dysentery, as far as this country is concerned, is its tendency to relapse. Primary infection is rare in Australia, even in the north. The low incidence is due to the absence of an extensive source of infection in the form of a primitive population. Cilento points out that the incidence is nowhere high in the Australian and Melanesian zones except where large numbers of Asiatics have congregated. It is patients suffering from relapses of dysentery caused by infection acquired elsewhere that we are likely to see in Australia.

A man, aged thirty-one years, went to New Caledonia with a party to work in January, 1942. They were in a camp where flies were numerous and conditions were primitive. On March 10, 1942, he became affected with diarrhœa and the evacuation of blood and mucus. His stools numbered about six a day for about four days. The diarrhœa subsided, but recurred four days later and lasted another four or five days. He arrived back in Sydney on March 25; symptoms recurred on March 29 and he consulted me on April 1, 1942. By this time he had lost two stone in weight and he was feeling weak and miserable. He was thin and looked sick; otherwise no gross abnormality was noted in the physical examination. He had no abdominal tenderness. The stool was fæcal and blood stained—not like anchovy sauce. Microscopic examination revealed red blood cells, pus cells, innumerable bacteria, and *Entamœba histolytica* exhibiting amœboid movement.

He was given emetine and later "Yatren" pills by mouth. Emetine-bismuth iodide and "Yatren" powder were unobtainable at the time. He recovered.

Complications.

If perforation occurs the formation of a pericolic abscess is likely. It is unusual for perforation to be followed by general peritonitis. Bleeding from the base of an ulcer is

common. It may be profuse; but it is seldom alarming. Frequent small hæmorrhages cause anæmia.

Metastatic complications are more important than the local complications. Hepatitis manifests itself by pain, fever, tenderness and hepatic enlargement. If it is unrecognized it may go on to abscess formation, which gives rise to a hectic fever and drenching sweats at night. Hepatitis and liver abscess may occur before the diagnosis of intestinal amœbiasis is made; indeed it may require symptoms of one or other of these disorders to draw attention to the state of the bowel. A valuable sign in the differentiation of hepatomegaly from other conditions causing dulness to percussion of the thorax, and one that does not seem to be widely known, is the change in the level of the dull area when the patient changes position. When the patient lies on his left side the liver falls away from the thoracic wall and a resonant note is obtained where formerly it was non-resonant.

Diagnosis.

Amœbic dysentery should always be suspected in persistent or relapsing diarrhœa in patients from tropical countries and from certain sub-tropical countries, especially the Far East. But it must be remembered that many people who have once had dysentery are subject to bouts of functional diarrhœa.

The diagnosis depends finally on finding *Entamœba histolytica* in the motions or in scrapings obtained from an intestinal ulcer through a sigmoidoscope. The organism is 20μ to 30μ in diameter; it has a granular endoplasm and hyaline ectoplasm; it is apt to ingest red blood cells, which are clearly visible in its endoplasm; it never ingests bacteria or debris (in this way it differs from the non-pathogenic *Entamœba coli*); its nucleus is invisible unless staining is used; it moves in a slug-like manner by the rapid protrusion of a broad hyaline pseudopodium. It does not race across the slide like the flagellates; but it does travel. It can be seen in movement only when the stool is warm. Unless this movement occurs a diagnosis of amœbic dysentery from examination of the fresh stool cannot be made with certainty. Large endothelial cells, known as macrophage cells, which frequently appear in the stools of ulcerative colitis and bacterial dysentery, have often been mistaken for *Entamœba histolytica*. They have the capacity of ingesting red blood cells; but they are not capable of amœboid movement. They sometimes closely resemble *Entamœba histolytica* that has stopped moving. As they are usually in company with Charcot-Leyden crystals in ulcerative colitis, the possibility of confusing this disease with amœbic dysentery is apparent.

At the intervals between bouts of diarrhœa cysts of *Entamœba histolytica* may be found in the stools. They measure 7μ to 20μ in diameter. They are round or almost round, and they contain one, two or four nuclei and highly refractile rods known as chromatoid bodies. A young cyst contains a comparatively large glycogen vacuole; but when the cyst becomes mature, this vacuole disappears. The essential features of the cysts are well brought out by staining with iodine solution. A saturated solution of iodine in 5% potassium iodide solution keeps well, whereas ordinary Gram's iodine deteriorates rapidly. A drop of the iodine solution is placed on a slide, and to this is added a drop of distilled water. A speck of fæces is picked up on a wooden toothpick or applicator and rapidly rubbed in until a smooth emulsion is formed. A thin cover-slip (size "0") is dropped on and examination may be commenced with the low power if you are an expert and with the high power if you are not so expert or if you prefer this method of examination. The illumination should be shut down considerably. Look for minute, round, clearly defined, glistening, greenish bodies; if you find one examine it with the oil immersion lens to obtain a clear view of its structure. It may be an oil droplet, a blastocyst, or a protozoal cyst. If it has four nuclei and two or three glistening rod-like structures, or if it has one or two nuclei and a rounded brown-staining vacuole, it is a cyst of *Entamœba histolytica*; if it is oval and contains an irregular structure of curved filaments, it is *Giardia intestinalis*; if it is irregularly staining at the periphery and hyaline centrally and has no obvious nucleus, it is a blastocyst; if it has one, two, four or eight nuclei, each with an eccentric karyosome, it is *Entamœba coli*. But there are many interesting and puzzling objects to be seen in the fæces, and the persons who examine fæces rarely may have great difficulty in differentiating the significant from the unimportant.

In the stool of acute amœbic dysentery, objects besides amœbæ are Charcot-Leyden crystals, bacteria, pus cells, undigested food and necrotic material. Charcot-Leyden crystals are highly refractile, spindle-shaped objects, sharply pointed at either end and varying in length from about 5μ to about 20μ or more. They are usually described as whetstone crystals; but they are not like a whetstone unless their pointed ends are broken off. They are of importance because they are always present in amœbic dysentery and because the opinion has been expressed that their presence is diagnostic of amœbic dysentery. Unfortunately the diagnosis of amœbic dysentery is not so easy. These crystals are seen in some other intestinal diseases. For example, they can be found in almost all, if not all, cases of ulcerative colitis. Manson-Bahr states he has found them in ulcerative colitis, mucous colitis, helminth infestation, coccidiosis and malignant disease.

A feature of some importance in the differentiation of amœbic dysentery and bacterial dysentery is that in the former bacteria are innumerable in the stool, whereas in bacterial dysentery they are scanty.

Sigmoidoscopic examination in the hands of an expert is of value in diagnosis and in gauging progress during treatment. When the organisms cannot be found in the stools they may be seen in material obtained through a sigmoidoscope from the base of an amœbic ulcer. The characteristic lesions of the disease may be observed if they are low enough in the intestinal tract. Sigmoidoscopy in this disease causes little pain.

Features of importance in diagnosis may be summarized as follows:

1. Relapsing diarrhœa.
2. "Anchovy sauce" stools.
3. Putrefactive stools.
4. Discovery of *Entamœba histolytica* by microscopic examination.
5. Sigmoidoscopic appearances.
6. Finally (if other measures fail, and the history is strongly suggestive of amœbic dysentery) the therapeutic test of emetine.

Treatment.

The treatment of intestinal amœbiasis may be divided into two stages, namely: (i) the treatment of the dysentery and (ii) the prevention of relapses (in other words, the elimination of the infection).

The Acute Dysentery.—In the treatment of the dysentery, emetine, an alkaloid of ipecacuanha, is specific. It is given by hypodermic or intramuscular injection in a dose of one grain a day for ten days. During this treatment the patient must remain in bed. Emetine is a dangerous drug when used injudiciously. It has certain toxic effects, not the least of which is on the myocardium. In rare cases it causes peripheral neuritis. Not uncommonly it causes diarrhœa, a particularly dangerous symptom if its true significance is not recognized, for it may lead the medical attendant to increase the dose or prolong the administration of the drug. A quite frequent manifestation of the toxic action of emetine is a branny desquamation of the skin and brittleness of the nails. On no account should the administration of emetine be continued for longer than twelve days.

The Elimination of the Infection.—In order to eliminate the infection the treatment with emetine should be followed in about a week by the administration of emetine-bismuth iodide by mouth and chiniofonum by the bowel in the manner recommended by Manson-Bahr. It may be possible to kill off all the organisms by the administration of either of these drugs alone; but the combined method has given the more consistently satisfactory results.

Emetine-bismuth iodide is a red, insoluble powder. It liberates emetine on contact with the intestinal juices. It

should be given in gelatine capsules, as in the form of a compressed tablet it is apt to pass through the intestinal tract unchanged. The full dose for an adult is three grains; but it is not necessary to give more than two grains in any single dose. One grain is given on the first day of treatment and two grains are given on each of the following nine days.

Emetine-bismuth iodide should always produce toxic symptoms. If it does not, then it is not being broken down in the intestine. Nausea is an unavoidable symptom. Vomiting and diarrhœa are likely. In order that the patient may retain the drug long enough for it to pass into his intestine, he must lie still after taking it and must not swallow his saliva, but should allow it to dribble away on a towel, or should wipe it away. No food or drink is taken for four hours before the administration of the drug. A dose of phenobarbital (say one grain), given half an hour before the emetine-bismuth iodide, helps to induce sleep and greatly diminishes the nausea. Unless symptoms of toxicity are really severe, there is no necessity to suspend treatment.

Chiniofon is the British Pharmacopœial name of sodium-iodoxy-quinoline sulphonate. It is also known as "Yatren" (Bayer), "Quinoxyl" (Burroughs Wellcome and Company) and "Quiniosulphan" (May and Baker). It may be given by mouth in the form of capsules or of keratin-coated pills, or by the rectum in a 2·5% solution.

Pills are dispensed in a dose of 0·25 gramme. Four may be given daily for ten or twelve days. In many cases a course of these pills alone is sufficient to eliminate cysts of *Entamœba histolytica*.

The method of choice is rectal administration. The bowel is first washed out with a pint of a 2% solution of sodium bicarbonate. The object of this is to soften and loosen and wash away mucus and other debris that might prevent the chiniofonum from coming in contact with the lining of the bowel. Half an hour later, or when the patient feels that the bowel is empty, eight ounces of chiniofonum solution are slowly run in. As the patient has to retain this solution for eight to ten hours, the technique of its administration must receive careful attention. The solution must be warm. It may be run in through a rectal tube or a stout rubber catheter. I prefer the latter. The patient lies on his back or his left side during the operation. The solution flows readily along the colon to the caecum if the patient is relaxed.

Manson-Bahr's scheme for the combined treatment with emetine-bismuth iodide (E.B.I.) and chiniofonum is as follows:

SCHEME OF DIETARY AND COMBINED TREATMENT FOR INTESTINAL AMŒBIASIS.

On waking, potassium-chlorate mouth-wash.
7 a.m., pot of tea and 2 oz. milk.
7.30 a.m., one egg, buttered toast, cup of tea and 2 oz. milk.
8 a.m., sodium-bicarbonate enema 2 per cent.—1 pint.
8.30 a.m., yatren 2½ per cent. by rectum (8 oz.).
9 a.m., 8 oz. milk.
10.30 a.m., juice of an orange, glucose ½ oz.
12 noon, liver soup, chicken or fish (boiled or fried), white sauce, toast, butter, custard or milk jelly, baked apple.
4 p.m., boiled egg, toast, butter, juice of one orange and ½ oz. glucose, or grapes or ripe banana, sponge fingers.
5 p.m., yatren enema voided.
6 p.m., milk 8 oz.; bath.
9.30 p.m., sedative (luminal gr. 1).
10 p.m., E.B.I.
10.30 p.m., sleep.
2 a.m., vomit (therapeutic action of E.B.I.).

During the combined treatment the patient should be nursed in bed and should be allowed to get up for his bath. He may be allowed to use a night commode for stools and for vomiting the residue of the yatren enema. On the first night E.B.I., gr. 1, is given, on the second and subsequent nights, gr. 2.

Other drugs, such as "Stovarsol", "Carbarsone" and kurchicine, have been used. They do not appear to have much value. "Rivanol", an acridine derivative, is said to have a similar action to that of chiniofon. I have had no experience of it.

Diet.—During the acute phase of the dysentery good, nourishing, simple, non-irritating food, rich in protein and as free as possible of roughage should be given, providing the patient can tolerate it. If the patient is very weak and sick he may need to be given liquid and semi-solid food only for a few days.

During the administration of chiniofon and emetine-bismuth iodide, the diet must be light (see Manson-Bahr's scheme).

During convalescence the diet should be full and non-irritating. Grilled steak is specially valuable.

Giardial Dysentery.

There is some difference of opinion on the pathogenicity of *Giardia intestinalis*. This organism's usual habitat is the small intestine, and it seems to be more likely to cause enteritis than dysentery. However, there are cases of obvious dysentery in which it is consistently found, while amœbæ and dysentery bacilli cannot be found. The symptoms may resemble those of either amœbic dysentery or bacterial dysentery.

A man, aged twenty-six years, went to New Caledonia in January, 1942. While there he suffered from diarrhœa and passed stools containing blood and mucus. He returned to Australia in March, 1942, and thereafter suffered from periodical bouts of diarrhœa of a similar type. He consulted me in October, 1942, when he was passing loose, blood-stained stools. He passed a small quantity of bloody mucus for my inspection. This was found to contain numerous *Giardiæ intestinales*, pus cells and macrophage cells, as well as blood. Sigmoidoscopic examination revealed no ulceration; but blood-stained material was observed in the rectum. Microscopic examination of this material revealed *Giardia intestinalis*. At repeated examination of the stools, these organisms were invariably found, either in their free-living form or encysted. This patient is at present under treatment.

Giardia intestinalis is a flagellate. In shape it somewhat resembles half a pear. When viewed from its ventral or dorsal aspect it looks like a kite. It is 12μ to 18μ in length and about 6μ in breadth. The posterior extremity tapers into a tail from which two flagella stream backwards. There are three other pairs of flagella. Running down the centre of the organism are two fine rods (axostyles). The organism progresses rapidly by a waving motion of its flagella. The cysts of *Giardia* are unmistakable. They are oval and contain from one to four nuclei. The axostyles and the irregularly arranged flagella are conspicuous.

Infection with *Giardia* has been difficult to eradicate in the past; but recent investigations seem to prove that "Atebrin" is specific.

Balantidial Dysentery.

Balantidium coli is a rare parasite of man. Its distribution is world-wide. Most cases of dysentery have been reported from Germany and France. It is a common parasite of the pig. People who tend pigs are specially liable to infection. The organism is a large ciliate, measuring up to 200μ in length and 40μ to 60μ in breadth; the average length is 50μ to 70μ. It is somewhat pear-shaped and is provided with an oral pore at one end and an excretory pore at the other. It is covered with fine cilia arranged in longitudinal rows. In liquid fæces it moves rapidly by waving its cilia.

The symptoms of balantidial dysentery are very suggestive of amœbic dysentery. The intestinal lesions of the two diseases also are much alike. I have seen one case.

The patient was a half-caste woman, aged about twenty-five years, who suffered from dysentery of long standing. She was grossly emaciated and extremely miserable. Her rectum was prolapsed and its mucosa was œdematous and inflamed. Her stools were frequent, liquid and blood-stained.

Emetine is the drug of choice in the treatment.

Bacterial Dysentery.

Bacterial dysentery is an acute infectious disease, tending to appear in epidemic form, caused by invasion of the colonic mucosa by an organism known as *Bacterium dysenteriæ* (or more commonly the dysentery bacillus), which produces inflammation and sometimes ulceration of

the mucosa and causes toxæmia of greater or less degree. The outstanding symptoms are diarrhœa and the discharge of blood-stained purulent stools.

Ætiology.

The disease is commoner in tropical countries because of the more primitive sanitation in such places.

Of the three main types of the organism, Flexner is the one most likely to be encountered in Australia and Melanesia; Sonne and Shiga are rare. Shiga is by far the most virulent; but either of the other two may cause serious illness and even death. Generally the Sonne organism is considerably less virulent than Flexner.

The organism may be transmitted directly from man to man under primitive dirty conditions; but in most cases the transmission is through one of the media mentioned in the discussion on the ætiology of dysentery generally. Flies are of special importance. Milk (presumably contaminated by flies in most cases) is an important source of infection in infants in Australia.

Epidemics are apt to occur in wartime. In some campaigns the loss of fighting men from dysentery has been tremendous. The reason is that sanitation becomes primitive under field conditions. The likelihood of contamination of food by human fæces carried by flies increases, and the contamination of water is a possibility that is almost always present. Our troops are in danger of dysentery epidemics in New Guinea. Epidemics may occur in other theatres of war; but they are more likely to occur and to be widespread and of long duration in a country possessing a large, uncivilized population.

Persons most liable to infection are those who have been enfeebled by other diseases or malnutrition, or who are exhausted by physical over-exertion. New arrivals in the tropics are more liable to the disease than old hands.

Pathology.

In acute cases there may be nothing more to be seen microscopically than an intense hyperæmia of the mucosa of the large intestine. In Flexner dysentery there is often no obvious ulceration. On the other hand, quite extensive areas of mucosa may become necrotic and so ulcerated. In the rather rare chronic cases appearances suggestive of ulcerative colitis may be seen.

Symptoms.

The incubation period is from one to seven days. The onset may be sudden or insidious. In many cases the patient is constipated at first. He experiences malaise, bodily aching and feverish symptoms, and, if he is a tropical resident, believes that he is in for an attack of malaria. In my experience of Flexner dysentery this stage is well marked in infants. The child becomes febrile, dry and drowsy and is obviously very ill. In malarious countries the parents are apt to dose the child with quinine or to call the doctor because they suspect malaria. Within 24 hours or less the true nature of the disease is manifest. Stools become frequent, and griping pains in the lower part of the abdomen occur. The stools become more frequent and smaller. They may number 12, 20, 40 or 100 or more in the 24 hours. Tenesmus may appear. This symptom is the greater, the lower the lesions in the bowel.

The stools are at first fæculent and semi-fluid; but soon they consist of small quantities of viscid, jelly-like material stained with blood. At this stage they are odourless. If examined microscopically they will be found to contain red blood cells, pus cells, large endothelial cells known as macrophage cells, and scanty bacteria. When necrosis occurs they become putrid and grey and are mixed with blood and pus. In some cases quite large quantities of bright blood are passed. In the stage of recovery altered bile pigments reappear and the fæcal colour is restored. The stools become less fluid, lose their pus and blood, and eventually assume formation.

Fever is variable. It is not usually very high; but is practically always present.

In the early stages the abdominal muscles are rigid, so that palpation gives little information. Later, muscular relaxation may be sufficient to allow one to feel the hard, spastic, tender, rope-like sigmoid colon.

The course is variable. Usually it lasts a week or more, but sometimes a few days only; or it may drag on into weeks or months as a chronic dysentery. It may persist in this chronic form for months or even years. It is not so persistent as amœbic dysentery and very seldom assumes a relapsing character.

This is merely an outline of the acute symptoms and signs. Great variation in severity is possible.

Complications.

Perforation of the bowel is a rarity. Polyarthritis is not uncommon; recovery from it is the rule. Conjunctivitis and irido-cyclitis occur.

Sequelæ.

The most important sequela is probably the tendency to recurrence of diarrhœa from time to time. This is not invariable; but it is frequent. The sigmoid colon is spastic and readily palpable. It can often be felt to go into spasm under the examining hand. This is a functional disorder and in my opinion may be classed in the neuroses; it has its origin in fear. It is of special importance from the military point of view, as it may be the means of keeping otherwise healthy soldiers out of the front line. Reassurance and sedation are the requirements in treatment.

Diagnosis.

Microscopic examination of the stool provides useful diagnostic information. If in an acute dysentery numerous polymorphonuclear cells are found in the stools, the disease is almost certainly bacterial in origin. In the differential diagnosis amœbic dysentery gives the greatest difficulty. The main distinguishing clinical features are set out in Table II.

TABLE II.

Comparison of Clinical Features of Bacterial Dysentery and Amœbic Dysentery.

Bacterial.	Amœbic.
Acute with tendency to epidemic spread ("lying-down dysentery").	Chronic endemic ("Walking dysentery").
Incubation period: Seven days or less.	Long—20 to 90 days or more.
Onset: Acute.	Insidious.
Pyrexia: The rule.	Rare in the absence of complications.
Course: Days or weeks.	Prolonged.
Complications: Polyarthritis, irido-cyclitis.	Hepatitis, liver abscess.
Tenesmus: Severe.	Not usually present.
Stools: Scanty, numerous, bright red, gelatinous, viscid, odourless, like red-currant jelly.	Fæces intermingled with blood and pus, resembling anchovy sauce; very offensive.
Reaction: Alkaline.	Acid.

Treatment.

The principles of treatment of a patient with general toxæmia apply. The patient must be put at complete rest in bed. He must not be allowed out of bed to evacuate the bowel. If he becomes very weak and his stools are very frequent and the use of a bed-pan becomes distressing, a padding of absorbent cotton and tow may be placed under his buttocks so that he may pass his stools under him without exertion. In such a case great care must be taken of the buttocks and back to prevent soddenness and consequent inflammation and possibly ulceration. Small doses of morphine may be given to provide sleep and relief from pain.

The medical attendant must examine the stools at least once a day; for they provide the best guide to progress.

For the first 24 hours no food except glucose should be given. Ample water must be given throughout because of the dehydration. If dehydration is extreme glucose and saline solution should be given parenterally.

Milk is not usually well tolerated in dysentery, and it is best avoided. After the first 24 hours the following may be given: jelly, albumen water, rice water, chicken conjé, beef tea, arrowroot, sago pudding, strained orange juice. Feeds should be small and frequent. When the fever has subsided and the stools tend to become more fæcal in character, rice puddings, stewed fruit, mashed banana, papaw and toast may be added. Steamed fish, chicken or minced underdone steak may be given as soon as there is a tendency to formation in the stools. It is a great mistake to starve the patient. A nutritious diet must be given after the first 24 hours, and there must be no undue delay in adding solid foods to the diet. As long as there is no excessive roughage solid food can do no harm providing the patient's digestive powers are good enough.

It is generally advised to give a dose of castor oil and opium at the outset of the illness. I doubt the value of the castor oil. It seems to me to be just another insult to the intestine, which already has much to bear.

Treatment by sulphates has been honoured by time, and still is a valuable method. Sodium sulphate or magnesium sulphate is given in a dose of 30 grains every hour or 60 grains every two hours for the first two days, then 60 grains every four hours until the stools become fæculent.

Specific anti-dysenteric sera are available and should be administered if the patient is seen early. Serum is of value only in the early stages. It should be given in a dose of 30 cubic centimetres or more, to 60 cubic centimetres, intravenously or subcutaneously. The dose may be repeated in 48 hours if necessary.

A great advance in the treatment of bacterial dysentery is marked by the advent of the sulphanilamide group of drugs. Sulphapyridine has been found to be of much value. But the most valuable is sulphaguanidine, which can be given in much larger doses. Sulphapyridine or sulphaguanidine should be given in full doses in any severe bacterial dysentery. I have had no experience of these drugs in acute dysentery.

The treatment of dysentery in infancy is generally along the same lines as in adults, the doses of drugs being in proportion. The most important considerations are maintenance of the child's nutrition and prevention of dehydration. I have seen babies starved to death in Flexner dysentery.

Acknowledgements.

I have consulted Cilento's book "Tropical Diseases in Australasia" and I have made free use of Manson-Bahr's "Manson's Tropical Diseases" in the compilation of this paper. At the same time I do not suggest that either of these authors should be credited with or blamed for any opinions I have expressed or statements I have made; I accept full responsibility.

THE EPIDEMIOLOGY OF BACILLARY DYSENTERY.[1]

By W. C. SAWERS,

School of Public Health and Tropical Medicine, Sydney.

To review briefly the historical aspects of dysentery we have at least to go back to the time of Hippocrates. Its occurrence is noted in his writings, and he clearly knew a good deal about it. Other excellent early accounts are available; but until comparatively recent years no differentiation between bacillary and other forms of dysentery was possible. It is probable that the great majority of epidemic outbreaks were bacillary, and also that the bacillary dysentery cases were the most numerous. In respect to this latter point, it was estimated in the official history of the 1914-1918 war[(1)] that 90% of the acute clinical dysentery cases were bacillary in type. The first real advance in this problem of differentiation came in 1875, with the finding by Lösch of pathogenic amœbæ. The main dates of importance from the bacteriological side were the description of *Bacterium shigæ* by Shiga in 1898, of *Bacterium flexneri* by Flexner in 1900, in the Philippines, and of *Bacterium sonnei* by Sonne in 1915, in Denmark. Even as late as the 1914-1918 war, laboratory facilities were insufficient to render possible complete differentiation; but the clinical and epidemiological evidence is sufficiently strong to incriminate bacillary dysentery as the cause of devastating epidemics in practically all wars of major importance of which we have reliable records. Apart from the military forces, civilian populations have been frequently affected.

The position is well defined by Manson:[(2)] "Wherever the general hygienic conditions are bad, wherever the soil is much fouled by excreta . . . Wherever many people are crowded together in one building or camp, where the food is coarse, monotonous or unsound, there especially in tropical or subtropical climates" dysentery is liable to break out.

In consideration of the spread and control of bacillary dysentery, we have to consider the infecting organism, the host, and the means of transference of the organism to the uninfected host.

The Organism.

Whilst I shall endeavour to trespass as little as possible on the bacteriological aspects, it is necessary to stress some characteristics. The natural habitat of dysentery bacilli is the human intestine, for with occasional exceptions (such as monkeys in captivity) animals do not appear to suffer naturally from the strains of dysentery organisms that affect man. From an epidemiological standpoint, all our evidence points to man as the reservoir of infection. The dysentery organisms are not particularly resistant; they are killed by a temperature of 55° C. in one hour, they are susceptible to disinfectants, but they are stated to resist drying for twenty to twenty-five days.[(3)] This last point may be of distinct importance in the contamination of food by infected fæcal dust. In competition with other organisms dysentery bacilli soon die out, and although epidemics caused by infected water have occurred, the contamination would have to be recent, as storage for a few weeks should render the water harmless. The toxicity of the varying strains is of some moment, particularly to Australia. The Shiga organism is considered to be about twenty times as toxic as other strains. Up to the present time Australia and New Guinea have not suffered from outbreaks of Shiga dysentery; but the importation of this organism by troops and prisoners of war coming to Australia from infected areas is inevitable.

The Host.

In consideration of the part played by the host no race or age is exempt from dysentery; but the general health of the subject when infected is of importance. The severity of attacks may vary from mild intestinal disturbance (which may pass unnoticed) or attacks of diarrhœa without the passage of blood and mucus, to severe typical dysentery with the passage of blood and mucus and associated with toxic symptoms.

In civilian life, in respect to age, it is typically the very young and the old that are dangerously affected. The state of nutrition and the presence of any chronic debilitating disease, particularly malaria, may determine whether the subject will develop clinical dysentery and also the severity of the attack, and thus they may influence the occurrence of epidemics. This is emphasized by Fletcher[(3)] as follows:

> The high mortality in the District Hospital at Kuala Lumpur was due to the condition of the patients, not to any special virulence of the disease by which they were attacked. Robust persons infected with the same organisms did not become dangerously ill; several members of the hospital and laboratory staffs, who contracted infections during the course of our investigations, recovered after a comparatively mild illness. The case mortality of dysentery in the Malay States gaols is only 2 or 3 per cent. or about one-tenth of that in the hospitals. The explanation of this is, in the first place, the prisoners are generally strong, well-fed, and other-

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on October 29, 1942.

wise healthy; secondly, treatment in the gaol is begun early and continued until the patient has recovered.

Dysentery is a disease of poverty, as we shall have occasion to point out repeatedly in this report, and the influence of social conditions on the mortality is clearly shown by the results of treatment in Government hospitals, where there are wards of three classes. Europeans are admitted to the first-class wards, Eurasians, well-to-do Asiatics, Government clerks and the like, to those of the second class; native labourers, paupers and vagrants, to the third class. The mortality from dysentery is negligible in the first-class wards; in those of the second class it is not more than 2 or 3 per cent. (we have not been able to obtain exact figures); in the third-class wards it is about 25 per cent.

From the military aspect, active service conditions involving fatigue, ill nutrition and intercurrent sickness would produce similar results. Table I taken from the official history of the 1914-1918 war[6] suggests that these may actually have been present, even though hygienic difficulties were the major factor.

In respect to the host as a reservoir of infection, we have to consider the actual patient and the carrier. In comparison with typhoid fever, dysentery is essentially a bowel infection; the organisms are not found in the blood stream and are rarely found in other organs. Carriers are not infrequently found, and their condition may persist for long periods. Topley[6] quotes the work of Fletcher and Mackinnon, who during the 1914-1918 war "found that of 935 patients 71 or 7·59 per cent. were carriers, and that 26 or 2·78 per cent. were persistent carriers". (Fletcher and Mackinnon defined "persistent carrier" as one who carried the bacilli for more than three months after the beginning of the disease.)

Of the 71 carriers, 58 were carriers of Flexner's and 13 of Shiga's bacillus. Between these two classes there were striking differences. All the *shigæ* carriers belonged to the "persistent" group, whereas only 13 of the *flexneri* carriers were persistent excreters. The *shigæ* carriers excreted the bacilli with greater constancy than did the *flexneri* carriers; thus, out of 469 samples of fæces from *shigæ* carriers the bacillus was isolated 207 times, or once in every 2·26 specimens; whereas of 1,803 samples from *flexneri* carriers the bacillus was found only 330 times, or once in every 5·46 specimens. The *flexneri* carriers had a tendency to be intermittent; the bacillus was excreted for one or two days in succession, and then not again for a month or more; it was then excreted once more, only to disappear again after a few days. Even more striking was the clinical difference between the two series. The *shigæ* carriers looked ill and suffered from chronic dysentery and extreme mental depression; the *flexneri* carriers, on the other hand, were in moderately good health and were comparatively cheerful.

In respect to carriers, Boyd[7] records the following facts:

The bacillus should not be present in the bowel, and so in the stools, of persons who are *not* suffering from acute or chronic dysentery. Observations on this subject have been made on a large scale in the military laboratories of India, where native cooks, table boys and others of this class are examined prior to engagement to see that they are not carriers of enteric or dysentery bacilli. In the course of 3 years I examined over 3,000 such men, making between 8,000 to 9,000 platings of their stools. In no instance was a pathogenic dysentery bacillus, of any of the types to be described later, isolated except from men suffering from acute or chronic dysentery, in whose fæces cellular mucus could be found. This observation has in large measure been confirmed by others, who, in the period which came under my control, made 119,000 platings of the stools of 35,000 menials with similar results.

A possible interpretation of this may be that carriers are found only when definite pathological changes in the form of ulceration and retention cysts have resulted, and when the attack is mild the bowel completely recovers, so that no foci are left. If this is so, early treatment by sulphanilylguanidine may result in a diminution of the number of carriers.

Mode of Spread and Control.

The realization that the reservoir of infection is for all practical purposes fæcal material from the human patient or carrier, which has to reach the intestine of the uninfected, readily brings to mind the probable modes of spread and the methods of control. To mention the more important, we have the contamination of food and water directly by the patient or the carrier and indirectly by flies and possibly dust. There is much evidence to incriminate the fly. Rogers showed that in India the months when dysentery is most common are also the months when flies are most abundant; Manson-Bahr made similar observations in Fiji and Taylor in Salonika. Bacteriological work has confirmed the suggestion that flies act as vectors of dysentery bacilli. The passing of horse transport and its replacement by the motor car tends both in civilian and in military conditions to reduce the menace somewhat, but not to eliminate it.

The chief methods of control are the proper disposal of fæcal material and the safeguarding of food and water from infection by flies, by dust, or by the hands of infected personnel handling food. In this last-mentioned respect, all persons suffering from diarrhœa or dysentery should be debarred from the kitchen *et cetera*, and bacteriological examinations should be made. It must be remembered that the carrier state may be intermittent, and a single bacteriological examination is not conclusive. All these matters belong to the province of the hygienist and are too extensive to consider here. The improvements that can be effected, for example, in dysentery wards are well shown in the article by Hone, Keogh and Andrew in THE MEDICAL JOURNAL OF AUSTRALIA of June 6, 1942.

There remains the still unsettled question of prophylactic inoculation. There are several factors rendering this procedure difficult; firstly, the toxicity of these organisms, especially *Bacterium shigæ*; secondly, the multiplicity of strains—and it is well recognized that in any epidemic more than one strain of organism is often present; thirdly, the absence of conclusive evidence that immunity results. At present a reasonable case for prophylactic vaccination does not seem to be established.

Conclusion.

In conclusion, although it may be said that in well-organized, healthy communities dysentery can be reasonably controlled, whenever by war or depression the health of the population is impaired and proper hygiene is not possible, it appears inevitable that epidemics of dysentery

TABLE I.

Incidence of Dysentery (both Bacillary and Amœbic), 1914-1918.[1]

Theatre of War.	August to December, 1914.		1915.		1916.		1917.		1918.	
	Total Number of Cases.	Ratio per Thousand.	Total Number of Cases.	Ratio per Thousand.	Total Number of Cases.	Ratio per Thousand.	Total Number of Cases.	Ratio per Thousand.	Total Number of Cases.	Ratio per Thousand.
France ..	11	0·05	20	0·03	5,754	4·09	6,031	3·76	12,211	0·79
East Africa ..	—	—	—	—	—	—	9,369	486·56	1,646	116·51
Salonika ..	—	—	—	—	5,987	63·89	5,842	28·89	9,318	58·23
Italy	—	—	—	—	—	—	—	—	897	9·54
Egypt	—	—	—	—	5,599	31·19	4,341	23·13	4,906	21·80
Mesopotamia ..	—	—	—	—	1,839	50·94	4,960	60·34	5,445	51·12

[1] From the "Official History of the War. Medical Services, Diseases of the War."

will occur both in military and in civilian populations. Much, however can be done to minimize such happenings, if the knowledge of hygiene available is put into practical use.

On the debit side in Australia and its dependencies, we have the dislocations of war of both civil and military aspects. These involve the introduction of new strains (of particular significance is the Shiga strain with the presence of Japanese troops in New Guinea), the movements of population, and the probable lowering of the resistance of the individual members. On the credit side we have, or should have, a clear realization of our problem, and a hopeful, quick means of treatment by sulphanilylguanidine, which may help to diminish the incidence of the dangerous chronic infection.

References.

(a) "Official History of the War. Medical Services, Diseases of the War", Volume I, page 65.

(b) P. Manson: "Tropical Diseases", Fifth Edition, 1914.

(c) C. C. Topley and H. W. Wilson: "The Principles of Bacteriology and Immunity", Second Edition, page 539.

(d) W. Fletcher and Jepps: "Dysentery in the Federated Malay States", 1927, page 9.

(e) "Official History of the War. Medical Services, Diseases of the War", Volume I, page 64.

(f) W. W. C. Topley and G. S. Wilson: *Loco citato*, page 1237.

(g) J. S. K. Boyd: "Laboratory Diagnosis of Bacillary Dysentery", *Transactions of the Royal Society of Tropical Medicine and Hygiene*, Volume XXXIII, 1940, page 556.

Reports of Cases.

A NOTE ON THE POSSIBILITY OF AN AIR EMBOLISM WHEN BLOOD IS TAKEN FROM A DONOR WITH THE "SOLUVAC" TRANSFUSION BOTTLE.

By JOHN A. McLEAN, M.D.,
Melbourne.

IN THE MEDICAL JOURNAL OF AUSTRALIA of May 31, 1941,[1] the injection of air into a donor by a faulty Higginson syringe was reported. It is the purpose of this note to indicate another manner by which air may be accidentally introduced into the vein of a donor. At the Alfred Hospital blood bank, the following sequence of events has sometimes been observed. The donor is good and the needle is well fixed in the vein; the flow is at first excellent, then it becomes intermittent and finally stops, the quantity of blood in the bottle being 100 to 200 cubic centimetres. On two such occasions, the blood spurted from the needle when it was removed from the donor. Subsequent examination of the "Soluvac" bottle in these cases has revealed a small piece of rubber accurately fitting and blocking the lumen of the air outlet needle. It is evident that if the air outlet needle is completely obstructed, the pressure in the "Soluvac" bottle will rise as the blood flows in, until it equals the venous pressure, when the flow of blood will cease. If at this point there is a fall in the venous pressure, so that the latter is less than the pressure in the "Soluvac" bottle, there will be a reverse flow of blood followed by air into the vein of the donor. Such a sequence of events apparently occurred in one case, the details of which are as follows.

Clinical Record.

The donor, a man of middle age, had excellent veins, and three months previously one pint of blood had been taken from him in three and a half minutes. A large median basilic vein was easily entered in a distal direction; the needle was passed a short distance along the lumen of the vein and fixed in position with adhesive plaster. There was a good flow of blood, which continued for about a minute; then the flow became intermittent, flowing and dripping rhythmically in time with the contraction of the donor's forearm muscles. This intermittent flow lasted for a short time and then stopped. It was then noticed that the translucent tubing connecting the donor's vein to the "Soluvac" bottle contained air. The needle was immediately removed from the donor's vein; bubbles were seen and a hiss was heard as the air escaped from the needle. The donor showed no untoward symptoms, and one pint of blood was taken from his other arm, without difficulty, into another "Soluvac" bottle.

Comment.

In this case, no attempt to facilitate the flow of blood by the use of a reversed Higginson syringe was made, as previous experience has shown that the application of negative pressure in these cases is ineffectual. The citrate solution was previously introduced into the bottle by making use of the vacuum resulting from autoclaving. When the perforator was pushed through the bung, it was stated that there was a hiss of air and suction was felt at the end of the air filter. Apparently air entered the bottle through the perforator needle. It is possible that the piece of rubber, which was afterwards found in the needle, had a valve-like action and was slightly displaced by the vacuum in the bottle and allowed air to enter, and that when the vacuum disappeared a slight movement of the piece of rubber occurred, which resulted in complete obstruction of the needle.

The piece of rubber which blocks the air outlet needle in these cases is introduced into the lumen of the needle when the latter is forced through the rubber bung of the "Soluvac" bottle. The thickness of rubber which must be perforated by the needle is 0·8 centimetre. It is suggested that if the central recess of the bung was increased in depth, so that only a relatively thin membrane required perforation, the risk of blockage of the needle by an excised fragment of rubber would be considerably reduced.

It is recommended that in cases in which the flow of blood into the "Soluvac" bottle ceases and there is no reason to suspect a displaced needle or a fall in blood pressure in the donor, the needle should forthwith be removed from the vein and another "Soluvac" bottle used.

Reference.

(1) V. J. Kinsella: "A Blood Transfusion Accident", THE MEDICAL JOURNAL OF AUSTRALIA, May 31, 1941, page 690.

Reviews.

A MEDICAL YEAR BOOK.

A MEDICAL YEAR BOOK of a useful type comes from America. Volume III, 1942, of the "Medical Progress Annual" consists of 52 articles or reports on recent advances in diagnosis and treatment published during 1941 in *The New England Journal of Medicine*.[1] The editor, Dr. Robert N. Nye, explains in the foreword that the papers comprised in this book are not reviews of current medical literature, but are rather "listings" of the improvements in medical practice which, in the opinion of the several authors, have been accepted and should be used. The authors, as will be seen from the table of contents, all hold important medical appointments in medical schools and hospitals, and many of their names are well known to readers of this journal. The subjects cover a wide range. Among the more important are recent developments in aviation medicine, clinical blood chemistry in general practice, the treatment of dehydration in various conditions, *diabetes mellitus*, the encephalitides of virus ætiology, the adrenal cortex in health and disease, the physiological and therapeutic effects of hypothermia, the treatment of meningitis, physiology, the chemotherapy of pneumonia, tuberculosis, and the use of blood substitutes in war medicine. A feature of this book which will make it particularly valuable to those who wish to make a detailed study of a subject is the long list of references to be found at the end of every article. These references are the more useful from the fact that the full title of each article is included in the reference. Thus the chapter on the encephalitides concludes with 186 references; the chapter on the adrenal cortex has 56 references, the chapter on the effects of hypothermia 45, and so on. The book will clearly be of use to students and also to general practitioners; the references will make it a valuable addition to the library of any specialist.

[1] "Medical Progress Annual", edited by Robert N. Nye, M.D.; Volume III; 1942. Springfield: Charles C. Thomas. London: Baillière, Tindall and Cox. 9" × 6", pp. 692. Price: $5.00, post paid.

The Medical Journal of Australia

SATURDAY, FEBRUARY 20, 1943.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

YOUTH AND THE FUTURE.

A MONTH or two ago some space was devoted in these columns to a discussion on old age, youth and efficiency. On that occasion a plea was made for understanding, generosity and sympathy by older men that a way might be opened for the courage and advance of youth. The discussion arose because of the suggestion of an American author that certain therapeutic measures might be undertaken which would halt the process of ageing, and it was suggested that if the youth of the mind of ageing men could be prolonged they might be of service to the younger generation. Certain persons will be bound to ask why youth should be served now any more than it was several decades ago. "What is age for", they will ask, "if not to lead?" and "What should youth do but follow?" Most people know better. The speed of life has increased enormously, but apart from this, youth has been taught, or, if it has not been taught, has acquired, such habits of self-reliance in thought and action that attempts to curb its zeal are as futile as they are illogical. Further, if the world as it is today is the product of age, there is not much of which age can be proud. Here is no noble edifice, no splendid society, no common wealth of interest or aspiration. Age cannot burke at least its partial responsibility for the confusion and turmoil of the present era. It is not for age to stand on one side and to say to youth "This is your day, make what you can of it by yourselves", any more than it is for certain old men in leading positions to insist on their well-worn, out-moded and possibly muddle-headed tactics. All men of older years are not blind from habit or self-deception, and it is those with remaining vision who can serve humanity by their efforts to be of service to youth.

It is an essential feature of democracy that every member of the community, particularly in his early years, shall have an opportunity to develop his or her personality and that he shall have the opportunity to occupy in the social world the sphere for which he is best fitted. This is important, too, for democracy itself, for democracy must have leaders, and though it may be true that leaders are born and not made, qualities of leadership must be discovered while those who have them are young. Qualities of leadership when discovered early can be developed with the character of the individual and are likely in these circumstances to be of most benefit to the community. Perhaps it should be stated that the discovery of persons likely to display qualities of leadership ought to be a secondary consideration in every communal effort to give free play to individual tendencies and qualities. People are too ready today to call for leaders and to be unmindful of their own duties and responsibilities—it is so much easier to follow a leader and to blame him if the final event is not up to expectations. Medical practitioners need no reminder that health is not a matter alone of freedom from bodily disease. Health covers the whole life of man—the condition of his body, the capabilities of his mind, his ability to work and his capacity for the enjoyment of leisure. Aspects of all these have been discussed from time to time in these pages; they will be in all probability mentioned many times again, for they enter into nearly every discussion on preventive medicine. Attention has been directed to the subject of youth and the nation on this occasion by a conference recently held at Sydney by members of the Recreation and Leadership Movement under the chairmanship of Professor H. Tasman Lovell, of the University of Sydney. It should be explained that the Recreation and Leadership Movement stands for certain principles which have been set out as follows:

1. Opportunity for the fullest development of every child in mind, body and spirit, as an individual and as a member of a cooperative democratic community.
2. Education for leisure and cooperative living in accordance with the highest values of modern recreational and educational sciences.
3. The fullest possible freedom of speech, thought and action for free institutions in the field of recreation and leisure, compatible with organized social planning.
4. Training of recreational leaders in principles, theory and practice of recreation and education.

The conference had the support of the New Education Fellowship and was attended by court officials and voluntary workers of the Children's Court, Sydney. The main subject discussed was the profits and pitfalls of leisure. The holding of this conference at present is not without significance. Leisure cannot be considered apart from work, and a healthy attitude towards leisure as well as its profitable enjoyment connotes a healthy attitude towards work. If youth in the future is to fulfil its destiny, it must acquire and maintain both these attitudes.

The discussions at the conference led in two directions. The chairman, Professor Lovell, stated that frustration was the main cause of delinquency. In order to provide equality of opportunity, which was the only real equality, vocational guidance was necessary and it had to be remembered that persons had to be taught, not subjects. Delinquency need not be further mentioned at present; we are concerned at the moment with youth and the future, law-abiding and not delinquent youth. An important point was made by one speaker who referred to the value of active rather than passive recreation. Attendance at the cinema is a means of "escape", but is not so effective for the young from the point of view of recreation as active participation in some open-air sporting activity. If the younger workers are to enjoy leisure in the open air they

must not be over-wearied by hours of work that are too long. This question is bound up with that of holidays and the way in which they are spent. There is reason in the suggestion that special attention should be paid to the hours worked by youths in certain industries. Many apprentices have to attend technical schools after the day's work is done; these youths are little more than boys and too much should not be expected of them. The working of over-time by these lads is as a general rule not to be commended. Among other subjects mentioned were the training for leisure and the provision of recreation facilities. In this regard a great deal may be expected in the future from the work of the Commonwealth National Fitness Council. If it is possible to judge from the terms of one of the resolutions adopted by the conference, there seemed to be some fear that men and women might be accepted for active service who were needed in the field of recreation and physical education to implement the Commonwealth policy of ensuring national fitness. We think that the Commonwealth authorities are wide enough awake to know that special training is necessary for those who are to carry its schemes into effect. Far from granting exemption to persons who are to superintend and teach physical training, it would be better to find such teachers in the ranks of those who have returned from service—they would be likely to do much more with the young than others "specially exempted". If suitable teachers were not available from the ranks of the returned soldiers, it should be possible to find some who could be trained within a reasonably short time. The conference adopted several resolutions which will be sent to the Commonwealth Government, to the Government of New South Wales and to local government and other bodies.

No attempt has been made to give a detailed account of the recent conference of the Recreation and Leadership Movement; we have tried to show that the needs of youth in relation to the future of the community are engaging the attention of thoughtful people. One point in conclusion should be mentioned. Professor Tasman Lovell at one stage of the proceedings quoted the definition of freedom as "reciprocal rights and duties". In these days youth is prepared to discuss its rights; there is a great deal of example for this attitude. Duties are seldom mentioned; they are easy and oftener convenient to forget. When age would remind youth of its duties it must do so indirectly. There must be no preaching, but rather example. Above all, as one speaker insisted, there must be no suggestion that youth is on one side and age on the other. Cooperation will not be brought about with an attitude such as that. Cooperation between youth and age will arise as each respects the other. Respect cannot be claimed because of youthful fire and zeal on the one hand or because of a hoary head and length of years on the other; it is earned by character and action.

Current Comment.

MENTAL STATES AND PEPTIC ULCER.

ALL will agree that the most important task before the medical profession today is the prevention of disease, and for this a study of the causes of disease is all-important. Throughout the ages mankind has tried many ways of studying these causes, from dialectics to demonology, from the solemn observations and astounding deductions of mediæval medicine to the countless experiments of today, experiments whose unsung heroes are the guinea-pig, the rabbit, the rat and the mouse, and occasionally the dog. While the experimental method has yielded some magnificent results, one great drawback to it is that knowledged acquired from animal experiments is not always applicable to human beings, and only in rare cases is it safe to allow human beings to be the subjects of experiment. Now and then, however, accident or disease provides a ready-made experiment on a fellow-creature and makes it possible to continue humane and kindly treatment with meticulously observed experiments. S. Wolf and H. G. Wolff[1] have achieved this combination in their study of a patient with a gastric fistula, transmuting a rather gruesome misfortune into the stuff of scientific research.

Their studies were made on a man, aged fifty-six years, who at the age of nine completely occluded his œsophagus by drinking scalding hot clam chowder. Subsequently he fed himself through a gastric fistula 3·5 centimetres in diameter, surgically produced shortly after the accident. It was the patient's custom to put food into his mouth and, after tasting and chewing it, to spit it into an ordinary kitchen funnel inserted into his stoma. Through the stoma there protruded on his abdominal wall a collar of gastric mucosa essentially similar to the mucosa within the cavity of the stomach. The patient was in excellent health, had rare digestive complaints and was employed as a laboratory assistant. He is described as a small, wiry man of Irish-American stock, unschooled, married and the father of one child. "He is shy, sensitive, proud, stubborn and slightly suspicious. He is fun-loving, but very conscientious."

Wolf and Wolff found that acid in small amounts was continuously elaborated from time to time in the stomach of their patient, and that spontaneous transitory phases of accelerated secretion of acid occurred at intervals. These were accompanied by blushing of the mucous membrane and vigorous contractions of the stomach wall. With these basal conditions as a background, they observed from time to time that depression of gastric function occurred in association with fear and sadness. The patient suddenly experienced intense fear one morning in the midst of a phase of accelerated gastric function. An irate doctor entered the room muttering imprecations about an important protocol which had been lost. Our patient had mislaid it and feared that he had lost the record and his job. He lay motionless on the table and his face became pale. "Prompt and decided pallor occurred also in his gastric mucosa, and with it there occurred a fall in the rate of acid production." A minute later the angry doctor found his paper and left the room. The face and gastric mucosa of the patient at once regained their former colour. As an illustration of prolonged acceleration of gastric function, the following story is recorded. The patient was usually in a state of comparative financial insecurity, and because of this he was compelled to accept gifts from a certain benefactor. The benefactor meddled in the subject's personal affairs and when denied a hand in them threatened to withdraw support. During two weeks of much meddling the patient became intensely anxious about his future welfare and resentful of the activities of his benefactor. He was eager to throw off his dependence. At the end of the two weeks the opportunity for release came in the form of a rise in pay for his job at the hospital. This good fortune he received with the deepest feelings of relief. Prolonged gastric hyperfunction accompanied the two weeks of emotional turmoil. It was associated with gastro-intestinal complaints of the nature of heartburn and abdominal pain. From these and other observations the authors deduce that "it appears likely that the chain of events which begins with anxiety and conflict and their associated overactivity of the stomach and ends with hæmorrhage or perforation is that which is involved in the natural history of peptic ulcer in human beings".

[1] *The Journal of the American Medical Association*, October 31, 1942.

Interesting though their study is, it is certain that no generalizations should be made from observations of one subject, particularly when that subject is situated as Wolf and Wolff's patient was. The idea of the effect of mental states on gastric acidity is of course by no means new; Mittelman and Wolff, quoted in the present study, have observed the effect of emotional states on normal subjects and patients with gastric ulcer. Precise observations have, however, been lacking. It is indeed very difficult to be precise in assessing the emotional states of other people, or for that matter of one's self. One is reminded of the famous story of Leonardo da Vinci endeavouring with set square and compasses to measure the smile of a statue of Venus. In considering the causes of peptic ulcer, emotional states are not the only factors to be measured; it is more than likely that these causes are many and varied.

THE EFFECTS OF BLAST IN WARFARE.

EVER since the early days of this war, much attention has been paid to the protection of members of the Services and also of civilians from the effects of blast. In November, 1940, reference was made in these pages to observations by Zuckerman on blast injuries of the lungs. It was shown that pulmonary lesions were due mainly to the impact of the blast weight on the body. From this observation a discussion arose regarding protection of the human body from blast. Some observations of great interest have recently been made by Surgeon-Commander E. R. E. Williams in a Hunterian Lecture.[1]

Williams discusses the nature of blast. He states that although gunfire and bomb explosions are not strictly comparable, the pressure effects produced by both must be reasonably similar. Blast is not a mere mass-movement of air or other gas. He produces a remarkable photograph of an explosion of a mixture of pentane and air taken at an exposure of one-millionth part of a second. In this picture it is shown that the gases ejected from the muzzle of the tube do not present a regular front, but appear as "a molecular spray". At the same time a preceding regular-fronted pressure wave is shown. The velocity of the molecular spray is in the region of 5,000 feet per second; this is faster than the speed at which sound travels in air. The pressure wave, described in the illustration as "the detonation shock wave", is set up by the compression effect of the spray or windage wave acting against the inherent inertia of the air. Williams points out that it can be accepted within reasonable limits that the force of both the pressure and windage wave will decrease proportionately to the square of the distance from the centre of the explosion. He presumes that these waves are free to travel in air without encountering resistance. If an obstruction is placed in the path of the compound wave, however, an exalted pressure will be built up, because the wave will be reflected from the obstruction and the pressure doubled. The speed at which a pressure wave travels is rapidly reduced. Thus eleven feet away from an explosion of a 55 pound charge, the velocity was found to be only 2,000 feet per second. The time taken for the rise in pressure from that of the atmosphere to the blast peak is somewhere between one two-thousandth and one ten-thousandth part of a second, and the positive pressure wave in air is, of course, succeeded by a negative wave of much longer duration.

Williams made certain comparisons between a bomb and a shell. The energy generated by an exploding bomb is dissipated in all directions, but in gunfire the lines of force, except those applied radially to the wall of the explosion chamber of the gun, are primarily in the direction of the gun barrel. Hence it may be presumed that the total blast force at the muzzle of a gun is at least similar to, if not greater than, that of an exploding bomb of a similar weight of charge. Pressure measurements with guns of any calibre have registered a maximum of five to six tons to the square inch at the muzzle, with 25 tons to the square inch in the explosion chamber. Williams describes observations in which the effects of gun blast were measured. Volunteer observers were placed close to the breech end of the gun, and were disposed on a parabola with its axes centred at the muzzle. Each man carried a pressure-recording apparatus. In this way it was found (*a*) that unpleasant effects could be felt even behind the gun; (*b*) that the maximum blast pressure that could be withstood without loss of efficiency was two and a half pounds per square inch; (*c*) that the pressures produced physical effects which were described by the observers as being those of a sudden blow on the chest and abdomen. For this reason Williams states that he cannot agree with other observers who hold that pressures of 100 pounds per square inch, or thereabouts, are necessary to cause human damage. He describes protective clothing against blast. This consists of aluminium lined with rubber. It was found that even when an observer wore this armour, the greatest pressure that he could endure was seven and a half pounds to the square inch.

Discussing the causation of blast injuries, Williams refers to Zuckerman's experiment on animals, which showed that the positive pressure weight is the cause of lung damage. He thinks that the effect of the negative air suction wave cannot be entirely neglected, for it has great amplitude—it starts at the peak of the positive pressure and descends relatively slowly to below atmospheric pressure. He mentions experiments in which Daly produced lesions in the lungs of goats by subjecting them to sudden decreases in air pressure. He points out also that the third blast component of mass-movement of air or gas is capable of inflicting injury of any degree of severity, and is responsible for the shattering effects produced in the immediate vicinity of an explosion. When an explosion occurs in water, mass-movement is of small degree, and even close to the explosion the shattering effects are not seen. With an explosion in water there is only a single pulse of pressure to be considered. Williams states, in short, that the effects on the body of explosions, both in air and water, are primarily due to the externally applied pressure wave, but that in air both the windage factor and the after-suction waves play their part.

Williams describes some experiments carried out on animals tethered at varying distances from explosions in water. These cannot be described, owing to lack of space. One essential feature of Williams's argument, however, must be mentioned. He points out that after an explosion in water the pressure wave travels at the same speed as it does at first in air—that is, at five thousand feet per second—and this is the same as the speed of sound in water. The rate of travel is constant and does not diminish as the centre of the explosion recedes. The rate of fall of pressure is much slower than in air; it varies directly with the distance. Thus, if the pressure 60 feet away from an explosion was one ton per square inch, it would be half a ton at 120 feet and a quarter of a ton at 240 feet. After an explosion in water there is a reflection as the pressure wave reaches the surface, but in addition to this there will be a reflection from any dense object, such as the bottom or sides of a tank, and an increased pressure will be built up. If the obstruction is of low density, compared with water, and floating, the pressure wave will not be exalted, but will change from a static pulse to a wave of kinetic energy and the object will be projected into the air above. The human body has much the same density as water, but when a transmitted pulse from an explosion encounters an air cavity in the body such as the lungs, a wave of kinetic energy is formed in the layers of tissue and a disruptive effect will occur. Williams points out that if a man was wearing an inflated rubber jacket when exposed to an explosion in water, he would be afforded considerable protection, as the gas-filled jacket would largely absorb the disruptive effect of the change to kinetic energy of the pressure wave.

Only a short outline of the interesting observations made by Williams has been given. All practitioners to whom his article is available, would do well to study it.

[1] *The British Journal of Surgery*, July, 1942.

Abstracts from Medical Literature.

SURGERY.

Utility First Aid.

THE LANCET (August 22, 1942) in its leading article discusses first-aid methods and the modifications in first-aid treatment which experience in air raids has shown to be desirable. A plea is entered for the elimination of frills and trimmings, and the reduction of teaching to bare essentials. These must include protection of the injured person from further injury, the treatment of asphyxia, hæmorrhage and shock, and the support of injured parts. It is pointed out that the speedy transport of the injured person to hospital is of the highest importance and that dry dressings and firm bandaging are usually the best first-aid treatment of wounds, any attempt at cleansing being impracticable and time wasting. Pressure points and tourniquets are seldom of use. The application of splints in the dark is an ordeal for both the patient and the first-aider, and the patient's suffering, and therefore his shock, will be less if a broken arm is simply bound to the trunk and a broken leg tied to its fellow.

The Free Omental Graft.

J. L. MCGEHEE AND M. J. TENDLER (*Surgery, Gynecology and Obstetrics*, June, 1942) present a clinical and experimental study of free omental grafts applied to the peritoneal covering of viscera and the parietes in order to avoid adhesions and promote free mobility. The experiments were made on dogs with the object of determining the advantage or otherwise of scarifying the peritoneum before application and to determine other points at issue. Grafts were taken from the thinnest portion of omentum and the method of burying the cut edges and vascular bundles is described. The omental border should not be puckered by ligation, the free border of omentum should be used to avoid large vessels, the graft should be carefully sutured in place with fine catgut, the transplant must extend beyond the raw surface and the edges of the graft must be tucked under. Tension of the graft must be scrupulously avoided: (*a*) to guard against tearing out of sutures, (*b*) to interfere as little as possible with peristalsis, (*c*) to allow for the unavoidable swelling and œdema during healing. The authors found that better results are obtained when the surface to be covered is scarified before application.

Lung Ventilation in the Trendelenburg Position.

M. D. ALTSCHULE AND N. ZAMCHECK (*Surgery, Gynecology and Obstetrics*, June, 1942) report the result of a series of experiments to determine the effect of various positions upon lung ventilation, and the significance of the changes in subdivisions of lung volume in the Trendelenburg position. The measurements were made with the subject in the Trendelenburg, flat and head-up positions. The residual air was unchanged in the various positions studied, and the vital and total capacities varied only slightly. The vital and total capacities were lowest with the Trendelenburg, intermediate with the flat and greatest with the head-up positions. Striking changes in the reserve and complemental air volumes occurred. The reserve air was lowest with the Trendelenburg and greatest with the head-up positions; the complemental air varied inversely with the reserve air. These changes were interpreted as due to the upward displacement of the diaphragm when the subject was in the head-down position. The changes in the functional residual air are significant in that they afford information on changes in intrapleural pressure. Decrease in the functional residual air with the Trendelenburg position suggests that changes in intrapleural pressure occur when the subject is in this position which tend to make respiration more difficult and to impair the return of venous blood to the heart. The Trendelenburg position offers no advantages for the circulation in the brain over the flat position, and may well be less favourable so far as respiration and circulation are concerned. To patients suffering from shock or under the influence of sedatives or spinal anæsthesia it may be harmful.

Problems in Gastric Resection.

R. W. MCNEALY (*Surgery*, August, 1942) discusses some of the technical problems in connexion with the duodenal stump in the course of gastric resection. Most of the literature on the subject of gastrectomy is concerned with the technique of making the anastomosis, while little attention has been directed, and few contributions made, towards what is frequently the most difficult part of the operation—namely, the adequate closure of the duodenal stump. Gastric resection is sometimes necessary in the treatment of duodenal ulcer complicated by massive hæmorrhage. This complication most frequently occurs in ulceration of the posterior wall, and may be due to involvement of the gastro-duodenal artery in the ulcer. Freeing of the duodenum in order to carry out resection beyond the ulcer may be hazardous, as very little free duodenal edge may then be available for adequate closure of the stump. Such closure in addition may lead to distortion and even complete obstruction of the common bile duct, with consequent jaundice. The author suggests that resection beyond the ulcer is often unnecessary, as diversion of the gastric contents by gastrectomy tends markedly to allow these ulcers to heal. Where resection proximal to the duodenal ulcer has been performed, attempts are sometimes made to control hæmorrhage from the ulcer by ligature of the gastro-duodenal artery proximally in continuity. This alone is not sufficient, and it would be necessary also to ligate the artery where it divides below the duodenum. The vascular anastomoses, however, are so free that it is extremely difficult to control all major branches. The author suggests a method which he describes as "tamponading" the ulcer. He makes a secure closure of the stump, and then plicates the duodenum longitudinally with interrupted Lembert sutures for a distance of one to one and a half inches along the length of the duodenum. This crowds the anterior wall of the duodenum backwards against the ulcer. One of the post-operative complications which may arise when duodenal closure has not been secure is disruption of the stump, which may lead to the formation of a duodenal fistula. This disruption may follow an undue rise of pressure in the duodenal loop. This rise may be caused by obstruction at the gastro-jejunal anastomosis either at the greater or the lesser curvature. In this connexion a word of warning is given with regard to Finsterer's method of suturing the proximal loop of the jejunum for a short distance along the lesser curvature of the stomach above the corner of the anastomosis. The method is valuable when used with care, but angulation of the jejunum may result if this suture is carried too high along the lesser curvature. A similar effect may be produced if the distal loop of jejunum is sutured along the greater curvature unless care is taken to avoid distortion. Certain experimental work on disruption of the duodenal stump by the application of measured pressures in the duodenum has been reported in a personal communication to the author. It was found that after closure of the stump by the Kerr-Parker clamp method, followed by the longitudinal plication mentioned above, great resistance to disruption was obtained. The transverse stitches gave way first, but only when pressures were used much greater than those to which the human duodenum would ever be subjected.

Liver Necrosis Following Burns.

J. D. DUFFIN (*Canadian Medical Association Journal*, August, 1942) discusses liver necrosis following burns, and reports a further case. Patients developing this condition show jaundice and various blood and biochemical changes, and often succumb. The author quotes a series of post-mortem examinations on burned patients reported in 1938 by Wilson, MacGregor and Stewart. In eighteen of these patients the liver was found to be slightly enlarged, soft, greasy and friable. Microscopically, focal areas of necrosis involving individual lobules were found, the necrotic areas being central and mid-zonal in distribution, with viable liver cells around the portal areas. In the case reported by the author the patient was a female, thirty-three years old, who received second and third degree burns of face, neck, shoulders, arms and hands, the total area burned being about 180 square inches or approximately one-twelfth of the body area. The burns were treated by tanning, and the patient was given sedatives and intravenous injections of glucose-saline solution. Next day the urine contained albumin, and on the following day jaundice appeared and steadily deepened. The liver became palpable. On the fourth day the non-protein nitrogen level was 78 milligrammes *per centum*. The patient's condition then appeared to improve, and by the eighth day the non-protein blood nitrogen level had returned to normal. On this day, however, the patient developed signs of pneumonia, and died on the tenth day. Autopsy revealed a staphylococcal pneumonia with multiple pyæmic abscesses in lungs, kidneys *et cetera*.

The liver weighed 1,200 grammes, and was flabby, greasy and friable. Microscopically there were seen intense central and mid-zonal necrosis, the picture differing from that of acute yellow atrophy in that the necrosis affected portions of the individual lobule and not the whole of several adjacent lobules. Death was considered to be due to the combination of liver damage, staphylococcal septicæmia and staphylococcal pneumonia. The author discusses the fact that the liver lesions were indistinguishable from those seen in yellow fever, and closely resembled the lesions seen in Rift Valley fever. He considers that the necrosis must be due to a circulating toxin.

Lesions of the Male Breast.

R. W. SCARFF AND C. P. SMITH (*The British Journal of Surgery*, April, 1942) have contributed a study of material consisting of 65 specimens from partial or total mastectomy in the male, submitted for histological examination during the years 1924-1940 inclusive. Of these, fifteen were carcinomata, three sarcomata and one rodent ulcer of the nipple. Chronic mastitis was found in 41 cases, and the remaining five comprised four fibro-adenomata and one lipoma. In this material chronic mastitis accounts for more than twice as many cases as does carcinoma. In regard to the female, of lesions which come to surgical interference carcinoma is more than twice as common as chronic mastitis. The term "chronic mastitis" is used here in the accepted sense; it does not refer to an infective lesion, of which no example was seen in this series, and it is recognized that most of the conditions included under the term are rather the result of endocrine disturbance than of infection. In only three of the cases of chronic mastitis was there a degree of epithelial proliferation sufficient to give rise to serious apprehension of possible malignancy. Of these three cases two were from workers who had been handling stilbœstrol or its precursors for twelve and ten weeks respectively. Tenderness and enlargement of the breasts were noticed three to four weeks after the commencement of work, and persisted until it was discontinued, when the symptoms gradually subsided. Biopsies were performed three to five weeks after the handling of stilbœstrol had ceased. The only other mention of any such condition arising in the male breast in connexion with stilbœstrol which the authors could find, was a report by Dunn in 1940, who noted the clinical features of a case of gynæcomastia following stilbœstrol therapy.

Post-Traumatic Headache.

IN a review of 92 patients admitted to hospital for post-traumatic headache, P. H. Lehmann and A. E. Elvidge (*The Canadian Medical Association Journal*, September, 1942) emphasize the importance of correct treatment in the period immediately following the accident. Only twenty-seven of these patients had sustained a fracture of the skull; in the majority of all cases the injury would be termed moderate or slight. The headache seems to assume two definite types. Firstly, a dull heavy pulsating ache, a sense of pressure, fullness or tightness of the head, which may or may not be throbbing in character; it is usually generalized and regarded as being deep seated. The second type is more common and consists of sharp, shooting, stabbing, striking, lancinating focal pain, usually felt at one point (often the point of original injury) and is superficial. Both types of headache are usually accentuated by change of posture of the head, head movements, bending, standing or walking, emotion, fatigue and mental effort. Immediately after the accident complete bed rest under controlled conditions is essential for a period depending on the extent of the original injury, three weeks being the maximum except in cases of very severe injury. Lumbar puncture should be performed fairly soon after the accident to keep down any increase of cerebro-spinal fluid pressure, as this seems to have an important bearing on the prevention of post-traumatic headache. It is suggested that this reduction of pressure widens the subarachnoid space and prevents fibrinous adhesions from forming. Proper psychological handling is also a matter of extreme importance in the prevention of subsequent headache.

Liver Changes in Hyperthyreoidism.

MONROE A. MCIVER (*Surgery*, October, 1942), in a review, discusses the evidence of liver changes in hyperthyreoidism as revealed by jaundice, disturbance of liver function and post-mortem findings. Whether the changes are due directly or only indirectly to the action of the thyreoid hormone is not known. Experimental work has shown that the liver in hyperthyreoidism is especially susceptible to poisons such as chloroform, to the effects of intercurrent infection and to anoxia. The *B* vitamins help to maintain a normal level of liver glycogen. The therapeutic implications of this work are discussed. Adequate amounts of carbohydrate and protein should be included in the diet, but it is emphasized that in hyperthyreoidism they do not necessarily exert the same protective effect on the liver as in liver injury due to other causes.

Repair of Direct Inguinal Hernia with Osteoperiosteal Transplant.

J. R. VEAL (*Annals of Surgery*, August, 1942) describes his experiences with a method of direct inguinal hernial repair in which an osteoperiosteal transplant from the tibia is used in order to strengthen the defect in the abdominal wall. The author emphasizes the unsatisfactory results of the standard operations for direct inguinal hernia, and claims that with these procedures the recurrence rate is as high as 20%. He reports a series of 85 cases in which the new method has been employed and in which only one recurrence has been encountered, although it is admitted that, owing to certain difficulties, some patients were followed for only six months. Experimental work in dogs convinced the author that transplants of bone and periosteum were more "fibrogenetic" than periosteum alone. The hernia is exposed, and the size of the abdominal wall defect is estimated. The subcutaneous surface of the tibia is then exposed, and on the head and subcutaneous surface of the tibia an area resembling in shape a tennis racket is outlined. The head must be large enough to close the defect, and the handle or tail is about six inches in length. Using a chisel, the "head" of the racket is raised so that it consists of periosteum together with thin slivers of the subjacent bone. The tail consists of periosteum alone. The transplant is sutured to the margins of the defect in the abdominal wall, and the "tail" of periosteum is used, after the fashion of a Gallie's fascial suture, to reinforce the repair. Clinically the reconstructed wall is said to feel thicker and more rigid, and these characteristics were found to persist even in the cases with longest follow-up observations. No ill-effects have been observed, either in the abdominal wall or in the "donor" tibia. Radiographs have shown that the osseous portion of the transplant is absorbed in from six to twelve weeks.

The Bronchial Factor in Pulmonary Embolism.

J. H. JESSER AND G. DE TAKATS (*Surgery*, October, 1942) present the results of experiments performed to investigate the bronchial spasm which follows embolism of the pulmonary artery, and the methods available to control this spasm. Emboli were produced by the injection into the femoral veins of dogs of a mixture of barium sulphate, iron perchloride and normal salt solution. Changes in the bronchial tree were studied by introducing into it a radio-opaque medium and taking radiographs before and after the induction of embolism. Measures employed to prevent bronchial spasm comprised vagal section and the injection of atropine and papaverine. In a control series bronchograms were taken before and five minutes after the occlusion of the trachea by a clamp. The dyspnœa and cyanosis which resulted were not accompanied by bronchial spasm, suggesting that these manifestations of pulmonary embolism are not themselves the cause of the spasm which follows embolism. In a further series, after visualization of the bronchi, bilateral vagal section was performed. This was seen to cause a slight dilatation of the bronchi. In these animals the subsequent production of pulmonary embolism was not followed by any bronchial spasm. The injection of atropine was found to be less effective. In seven cases bronchial spasm was prevented, but in five others the atropine failed to protect the animal. Papaverine also has a protective function, but is a less effective antispasmodic than atropine. The authors recall, however, that it has been shown by Linder and Katz to have another beneficial action in inhibiting ventricular fibrillation, which is frequently the immediate cause of death in pulmonary embolism. The authors conclude that widespread autonomic reflexes occur within the distribution of vagal fibres. The suppression of these reflexes decreases the morbidity and mortality from pulmonary embolism. The authors suggest that the treatment of established pulmonary embolism should include the administration of oxygen, together with the intravenous injection of papaverine and atropine.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on October 29, 1942, at the Robert H. Todd Assembly Hall, British Medical Association House, 135 Macquarie Street, Sydney, DR. W. F. SIMMONS, the President, in the chair.

The Dysenteries.

DR. W. L. CALOV read a paper entitled "The Dysenteries" (see page 155).

DR. W. C. SAWERS read a paper entitled "The Epidemiology of Bacillary Dysentery" (see page 160).

DR. E. H. M. STEPHEN mentioned some of the features of dysentery as encountered at the Royal Alexandra Hospital for Children. The type of bacillus encountered had varied in different years in regard to relative frequency. There had been a few instances of Shiga infection. The treatment had changed considerably from the old days of semi-starvation and frequent irrigation to the administration of glucose, whey, separated milk and occasional irrigation to relieve distension. There had been a marked improvement as the result. He referred to the value of the intraperitoneal use of saline solution in dehydrated patients, and stated that it was inadvisable to add glucose to the saline solution. A further advance was the use of glucose saline solution given intravenously by the continuous drip method. In conclusion, Dr. Stephen expressed his appreciation of the papers presented; he considered that the discussion was opportune in the light of Dr. Sawer's view that the incidence of dysentery was likely to be considerably increased as a consequence of present war conditions.

LIEUTENANT-COLONEL E. S. A. MEYERS thanked Dr. Calov and Dr. Sawers for their papers. He thought it a matter for regret, in view of the importance of the subject, that none of the Service medical officers were present. Colonel Meyers then briefly discussed the history of dysentery in the Army in the New South Wales area since the outbreak of war; he said that the record was on the whole good. In October and November, 1939, a sharp, sudden outbreak occurred at one of the military camps. The camp was situated on a western slope; the prevailing wind from August to Christmas was from the west; the camp was hot and dusty, and there were large paddocks near by containing cattle and horses, and there was even a racecourse for good measure. The standard of hygiene was very poor; there was no such thing as fly-proofing or fly protection. From 800 to 900 troops were involved in the outbreak of dysentery, and some of them were very ill. About Christmas time the number of flies dropped considerably, and the outbreak subsided gradually. The Army had measures of control of flies which they tried to teach to the men. Most men had been rather "wet-nursed" before they entered the Army—they had lived in cities; in camp they suddenly found that they had to fend for themselves. Measures of hygiene were taught to them; they also learned the means of transmission of the disease (through food, flies, hands and water). They were taught that water must never be drunk unless it had been chlorinated. The hands were very important, particularly in northern areas. The men had instilled into them the value of personal hygiene. Everything possible was done in the way of providing protection from flies and in protecting food during transport and storage. The main point concerning food, flies and excreta was that every kind of fly protection must be used. Moreover, an attempt was made to build up the men's physical fitness. It was noticeable that after a few months in the Army they were in very fine condition; they all gained in weight. When the Japanese entered the war many troops went to battle stations hurriedly, and their hygiene was poor. Now an attempt was made to teach them improvisation for hygiene at battle stations, and present conditions were very satisfactory.

DR. MARJORY LITTLE said that one point should be stressed in connexion with the examination of specimens of fæces to discover whether dysentery bacilli were present; the point was that not only should the specimen be examined as soon as possible after its collection, but also the stage of the disease was very important. The earlier in the disease a specimen was examined, the more likely was the search for dysentery organisms to be successful. A series of examinations of specimens of fæces had been carried out by Sir Charles Martin and Miss Williams; over 1,000 cases were involved. When the examination was made during the first five days of the disease, 68% of positive results were obtained; when the disease had lasted longer, the proportion of positive results fell rapidly. Dr. Little again emphasized the importance of that point. She said that a patient who was passing blood and mucus should always be suspected of suffering from dysentery, and a specimen should be examined as early as possible.

PROFESSOR HARVEY SUTTON said that he had come across an epidemic that was undoubtedly water-borne. A running stream had proved too attractive to people camping near it and they contracted dysentery through drinking the water. The camp was downstream from a Turkish hospital in which patients with dysentery were being treated, and the water was not chlorinated. Lactose fermentors were found in the samples taken. Professor Sutton did not think sufficient attention in treatment had been given to tenesmus, which was a most distressing symptom and wore out the patient very rapidly. He recalled a lecture by a research worker from the Philippines, who stated that the ideal method of curing the symptom had been found to be the injection of a 20% solution of silver nitrate into the rectum. Professor Sutton did not know whether this injection had actually been used, but it seemed very drastic. One curious symptom in dysentery had been recorded. The army latrine was so constructed that when patients were constantly at stool, the latrine bar pressed on the sciatic nerve and produced a kind of one-sided sciatica, known as causalgia. This condition might take months to recover and caused serious disability. Professor Sutton agreed with Dr. Calov's method by which the patients were kept in bed; such a course of action would prevent the development of this causalgia. It was possible that in military camps in isolated stations further steps would have to be taken in regard to sanitation. In Madras and other similar places the problem had been solved by the bore hole latrine. In New Guinea it was the custom of the natives to defæcate into the sea. One worker in that area tried the idea of having one stream reserved for water supply and another for defæcation. The pan system could often be effective. He had once had a man returned to him from a military hospital after recovery from amœbic dysentery. Having read the books and applied the tests, he found the patient's excreta to be full of cysts. Such carriers should be known when they were discharged from hospital, and should be given instruction and not allowed to be food handlers. Disinfection was often incomplete—just some cresol dropped into the fæces. Professor Sutton pointed out that if disinfectant was to be used, sufficient time and a sufficient concentration were essential. If 5% was the disinfecting strength, then an amount of cresol (10% solution) equal in volume to the fæces should be added and contact allowed (after thorough stirring) for at least an hour. In his opinion the best method was the use of freshly slaked lime. Water was added to quicklime—enough to form a cream—and 10% strength used for one hour (a pound of quicklime to a gallon of fæces). Slaking was accompanied by great heat, and the dysentery organisms were more susceptible to heat than to anything else. If cresol was used, concentration had to be adequate and heat should be used as well.

DR. OLIVER LATHAM referred to the periodical outbreaks of dysentery in mental hospitals. He said that the late Dr. W. J. Penfold had been so disturbed by the occurrence of such epidemics that he had travelled to Sydney from Melbourne in order to impress on the authorities the value of dysenteric antiserum and vaccine. Partly as a result of this, Dr. Hilliard had been given charge of preventive measures at Parramatta. In this hospital Dr. Latham had seen as many as seventy of the aged and infirm class—those difficult to feed and depressed—down with dysentery. It was only rarely that the staff was affected, and the few of its members who were affected were those who were physically below standard. With regard to the examination of specimens for the presence of dysentery organisms, Dr. Latham said that when care was taken to prevent the specimen from growing cold and from becoming too acid, attempts at culture were more likely to be successful. Some patients had a tendency to suffer recurrences of the disease, presumably the carriers. In the old days dysentery was the scourge of mental hospitals. In 1919, while visiting mental hospitals in England, Dr. Latham had found one in which an "inner" hospital was established. In this "inner" hospital all who had dysentery were placed; they remained there until the mental condition was cured.

DR. E. T. HILLIARD referred to the work done at Parramatta on the so-called asylum dysentery. The work lasted about two years; about 92% of the causal organisms were found

to be of the Flexner type, 5% were of the Sonne type and about 2% were of the Shiga type. With regard to prophylactic inoculation, Dr. Hilliard said that vaccines were made from the organisms isolated except that the Shiga type was omitted; Dr. Penfold thought that a vaccine which included Shiga organisms would be too toxic and would cause unpleasant reactions. Of the patients, 500 were inoculated and 700 were not. Dr. Hilliard was of the opinion that inoculation was a preventive of dysentery. The incidence of the disease amongst the inoculated patients was much less than amongst those not so treated. Dr. Calov had referred to the value of feeding the patients; Dr. Hilliard said that at the time when the work was done at Parramatta he thought that the successful results were due to the antiserum, but now he thought that they might have been due to the extra fluid given as well. Dr. Hilliard knew the forms of treatment used in mental hospitals over the last twenty years; they might be referred to as "closing up" treatment and "opening up" treatment. Neither was so successful as treatment with sodium sulphate first and then injection of dysenteric antiserum in 500 cubic centimetres of saline solution.

Dr. Calov, in reply to Professor Harvey Sutton, said that he had never used in the treatment of tenesmus the heroic measure of the injection of a 20% solution of silver nitrate into the rectum. Dr. Calov thought that possibly morphine was the best to give the patient a few hours' rest. With regard to carriers—cyst-passers—Dr. Calov said that he thought the proper treatment was admission to hospital and the administration of emetine bismuth iodide and "Yatren" (chiniofon). He had been interested in the remarks that had been made on asylum dysentery; Dr. Calov believed that amœbic dysentery also occurred in attendants at mental hospitals. He had seen a wardsman in a mental hospital who had acquired it from a patient with dirty habits. The wardsman was a strong, healthy man; but the disease stayed with him for a number of years. In conclusion, Dr. Calov thanked those who had contributed to the discussion.

Dr. Sawers, in reply, said he was interested to hear of the outbreak of dysentery in which 2% of the causal organisms were of the Shiga type. Personally he had not encountered a local Shiga culture until recently; nor could he recall definite accounts in the Australian literature. He supported Dr. Marjory Little in advocating the examination of specimens as soon as possible after collection and in the early stage of the disease. In his paper he had refrained as far as possible from commenting on the laboratory aspects of dysentery, as he had been requested to speak from the epidemiological point of view.

DR. W. F. SIMMONS, from the chair, on behalf of the New South Wales Branch, thanked Dr. Calov and Dr. Sawers for their papers; he said that he supported the remarks of Lieutenant-Colonel Meyers concerning the absence of Service medical officers from the meeting. Dr. Simmons said that the committee that drew up the schedule of meetings for 1942 had tried to bring up for discussion subjects that would be helpful to the armed forces. Service medical officers would certainly have benefited by hearing the papers, and they could also have given their experiences of camp conditions.

Public Health.

PARLIAMENTARY JOINT COMMITTEE ON SOCIAL SECURITY.

THE Parliamentary Joint Committee on Social Security was appointed "to inquire into and from time to time report upon ways and means of improving social and living conditions of the people of Australia and of rectifying anomalies in existing legislation". The personnel of the committee is as follows: Mr. H. C. Barnard (Chairman), Senator Cooper (Deputy Chairman), Senator Arnold, Mr. Maurice Blackburn, Colonel R. S. Ryan and the Honourable J. A. Perkins.

The evidence given before the committee by practitioners in Melbourne and Sydney has been summarized and published in previous issues. In the present issue we publish the evidence given by Dr. H. R. R. Grieve.

DR. HERBERT RONALD ROBINSON GRIEVE, being sworn, made the following statement.

I am a legally qualified medical practitioner and a graduate in medicine of the University of Sydney. I am a member of the New South Wales Medical Board. I am an honorary clinical assistant in medicine at the Royal Prince Alfred Hospital, Sydney, and I have had eighteen years' experience of general practice in a district of Sydney which is partly residential and partly industrial. I have three and a half years' resident experience of hospitals of all kinds in Australia and England.

I desire to give evidence in criticism of the scheme for a salaried medical service set out in the reports of the National Health and Medical Research Council and also by way of suggesting a long-term health policy for the Commonwealth of Australia based on my knowledge and experience of medical practice in Australia and Great Britain.

At the outset it is necessary and important to indicate that a familiarity with the needs and the ideal conditions of a medical service to the people of Australia or any country is to be found more readily in the men and women who do the actual work in the present rather than in the offices of administrators. The cure and prevention of disease is so certainly a personal matter that those in daily and actual contact with sick people and the families who are to be saved from disease, are best qualified to judge and speak of their medical needs. It is to be noted in reference to this truth that the report under discussion of the National Health and Medical Research Council was compiled by members who, with two exceptions, are not practising doctors, but administrators; that of these two one voted against the recommendations of the council, and the other was complacent in its acceptance so long as the private practice of medicine was to be permitted to continue; and that before the submission of the report no consultation was held with, nor advice sought from, either practising doctors, of whom there are approximately five thousand in Australia, or from their most competent representatives. It is strongly suggested in my evidence that these facts should be borne in mind when the committee gives consideration to the undue emphasis laid in the report on the number and importance of administrators in the proposed medical service for Australia.

It will be accepted without demur, though there is no mention of the fact in the reports under consideration, that the first and the constant essential of a medical service is its promise of efficiency. Therefore, in approaching the consideration of the needs of such service in Australia, the council should have decided and reported first whether the present system was efficient and, if not, in what particulars, and whether its structure was substantially so sound that by adding to it a generally sound scheme would be evolved; whether, for example, by the provision of extended facilities for improved diagnosis and prevention of disease medical men in Australia could have been enabled to carry on the present admittedly high standard service. It is evident from the terms of the council's report that no such consideration was ever made. It is clear that the council made an initial assumption that the present system must go, and that its purpose was to determine the structure and functions of a nationalized salaried medical service (*vide* the preamble of the council's report): "This Council, therefore, has prepared this outline (which it does not suggest is a final and complete scheme) as a basis for the discussion of a reconstructed relationship between the Government, the people and the medical profession." Clearly its purpose is not primarily the maximum efficiency of the health service of the people, but the nationalization of medical practice, and it is evident from the character of the proposed scheme that the council is prepared to countenance for that purpose the creation of another extensive bureaucracy.

What are the salient features of present medical practice? They are that patients shall have free choice of doctor, that the patient's interests shall be the doctor's main obligation, and that in fulfilling it he shall cooperate with his professional colleagues. Those fundamental principles of medical practice are as necessary and sound today in Australia and as widely held to as they have been in almost every civilized country since they were first enunciated by Hippocrates in Greece two thousand years ago. They have survived down through the centuries, and that is sufficient evidence that they have been predominantly in the interests of the people; and it is significant that during the only period when they were in abeyance—namely, in mediæval times when medical practice was regulated by an authority outside medicine itself—the science of medicine endured its only period of stagnation in all its history. The report under consideration sets out clearly that medical practice is to be conditioned by the regulations of an outside authority—namely, a government department—and that all these fundamental principles shall be swept away; that the doctor's first duty is to his employer, the government; that the patient shall not have free choice of doctor, and that the

doctor shall only cooperate with his colleagues in a manner decided by his superiors in the administration; that, indeed, the freedom of thought and freedom of judgement which have been the true basis of medical progress in all ages shall be limited by what a redundant body of administrators shall from time to time, by regulation after regulation, decide as to how a doctor may do his work of curing sick people and preventing illness.

The proposed scheme would destroy the basis of the people's confidence in the doctor by destroying freedom of choice; it would subvert the doctor's efficiency because he would have to think not only of what was the right course in the patient's interest but whether it would meet with the approval of his seniors in the service, for, as Part IV of the report sets out, the doctor in the scheme would depend for advancement not as at present on the efficiency and the results of his practice and his personal value to his patient, but on the favour and the consideration of his seniors, who, being part of an administrative service bound strictly and closely by regulations, will naturally not take a favourable view of the enterprise and independent judgement which are the vade-mecums of a doctor who is efficient in practice. It cannot be over-emphasized that the confidence of the patient, which is essentially a personal matter as between him or her and the doctor, and the freedom of the doctor's mind from chattels are the indispensable foundations of a successful medical service. This scheme, as we have seen, destroys both, and in doing so it destroys the family doctor. Members of the council are prepared to effect the disappearance of the family doctor, and that is an evidence of their want of familiarity with people's needs. The patient does not come to the doctor as a unit, a cipher, a mere piece of organic matter, to be card indexed and catalogued, but as a living human being with aspirations and daily problems, and his family doctor is the one person to whom he can disclose his most intimate concerns. It is frequently out of these disclosures that the right course of treatment for his or her restoration is discovered. When, therefore, the relationship between patient and doctor is changed from the personal to the impersonal, as in a change from the present to a salaried service, then medical efficiency must retrogress and medical practice will take on the essential feature of the practice of one thousand years ago—namely, dependence on a non-medical authority.

The council refers to alternative methods of payment under the scheme in Part I of its report, and it is clearly in favour of a salaried service owing to its comparative simplicity of administration. The salary levels for administrators are generally higher than for the practising doctors who take the responsibility of individual life and death; an administrator is placed in charge of every consultation centre in the capital cities under the scheme at a relatively high salary. It is easy to see how with the duties of administering medical officers, enumerated as they are in Part III of the scheme, there will be created a vast, complex, hopelessly confusing mass of regulations governing practice. Under such conditions efficient medical practice as between individual human beings and their doctors becomes quite impossible.

The council in its report has failed to note that as approximately four thousand doctors would be required to work its scheme, which includes both general and specialist practice, and as it is clearly intended to supersede the present system of practice, the governing authority would need to regulate and control the entry of students into the medical schools and the entry of graduates from overseas universities. Thus there would be introduced two further vicious principles: the destruction of freedom of choice of a career for young men and women and of reciprocity in the right to practise with graduates of universities in other countries. In effect, this would mean that your son or my son could not, though he qualified by examination to enter the faculty of medicine, freely proceed to become a doctor and depend on his ability for success, and if he wished to practise in other countries of the British Empire he must obtain the sanction of the statutory authority, which would only be given if its estimate of future requirements of personnel permitted his enrolment. The institution of this form of bureaucracy would therefore mean that there was at least one life's work a boy or a girl could not freely take up at will.

The council makes no mention in its report of compensation to practising doctors for the loss of the capital value of their practices and of their places of practice. In a large percentage of cases these capital values represent the whole or a major part of a doctor's life savings. The council clearly intends that its scheme will in the course of time destroy the present basis of practice, and yet it commits itself to the indefensible principle of destroying a man's legitimately employed and conserved capital without compensation. It is to be considered that if the fair course was followed and compensation made, the amount involved would be so substantial that it would constitute one of the reasons why the council's scheme is in any case financially impracticable.

The scheme introduces the principle of promotion by favour of seniors. Part IV sets out that a doctor at a one-man centre may be transferred to a higher centre or promoted to a higher grade when a vacancy occurs and on the recommendation of his seniors. The same basis is provided in the scheme for promotion from any one grade to a higher grade, so that a doctor's advancement must depend primarily on the favour of the seniors responsible for recommendations. Thus there is introduced the practice of favouritism with ultimate serious possibility of improper influence and nepotism. It cannot be denied that one positive result such as this one would be the creation of a powerful medical bureaucracy representing a pernicious vested interest. Under such conditions efficient medical service to individual people, which it is interesting to note is never directly mentioned in the report, would become practically impossible.

The future health policy for the Commonwealth should have been considered by the council in relation to the possibility of using the present system as a basis and building up on that. Its consideration is in any case inseparable from that of social and economic conditions in general. The present system has worked well since its earliest days. It has evolved by a natural growth. The enterprise, the enthusiasm and the moral purpose of generations of practising doctors have, with the assistance of public-spirited private individuals, friendly society executives and successive governments, created a huge yet relatively simple structure, not overburdened with administration. The standard of private and contract medical practice, the structure and practice of hospitals, the extent of preventive practice compare more than favourably with those of any country of the world. On this point competent American authorities who have visited Australia were definite.

There is now, as there will always be, room for improvement. The scheme proposed by the council will involve a large capital expenditure and a very large annual maintenance cost, both sums measured in millions of pounds. The estimates submitted in the report are, in my opinion, far too small. For a very much lesser expenditure a long-term health policy could be fulfilled to embrace the following essentials: (i) The provision of proper housing for the people. (ii) The provision of the protective foods required by all the people at prices within the capacity of wage-earners to buy. (iii) The subsidization of popular medical education. (iv) The extension of medical services, including the Flying Doctor Service, on a subsidized basis to outlying centres. (v) The subsidization and organization of centres for X-ray, pathological and other scientific investigation throughout the main metropolitan and country centres of the Commonwealth. These proposals will be elaborated in my verbal evidence.

It has been suggested that such a scheme as that proposed by the council is necessary for the rehabilitation of medical men in the Services. That is neither necessary nor desirable. There is at present a very serious shortage of civil practitioners. The doctors now engaged in civil practice will be so exhausted through their extra work that at the conclusion of the war they will welcome partners and assistants from the ranks of doctors on service; a large proportion of the younger doctors on service will require further experience in civil hospitals, especially in women's and children's complaints, before being fitted for general practice. Hospitals and existing public health services are now seriously understaffed. In any case, absorption of the Service doctors into civil practice among civil medical colleagues will most readily fit them for an efficient service for the public. To sum up, a medical service must be fundamentally based on its prospect of providing the maximum efficiency in the cure and prevention of disease. That must be the day-to-day ideal. The proposed scheme is wrong in principle because it must destroy what I have described in the early part of this statement as the salient features of the present efficient system—namely, free choice of doctor, responsibility of the doctor to the individual, and cooperation with professional colleagues to those ends.

Dr. Grieve went on to say that the National Health and Medical Research Council scheme made no direct reference to the question of preventive medicine except incidentally. The report of the council indicated a lack of knowledge of

the extent of preventive practice already in Australia. Prevention had been the main feature of the practice of medicine since the days of Lister. An example of the quick adaptation of new discoveries was the fact that the sulphonamide drugs were being used, and had been used almost since they were first available, for the prevention of disease. Another illustration of the same thing was the almost universal practice of immunization against diphtheria. Immunization was in the first instance begun on the representations of the practising doctors of the British Medical Association, and they met with the same sort of slow acceptance that they had always met with from the public health departments, which took a lot of convincing. Whooping cough was now worse than diphtheria and scarlet fever put together. Another example of the need for preventive medicine was the question of tuberculosis. Five years previously the Federal Council of the British Medical Association for the first time represented to the Commonwealth Health Department that it should advise the government of the day to institute a system of pensions for breadwinners suffering from tuberculosis—a living wage pension. That was one of the most vital problems in preventive medicine, and nothing had up to the present time come of the Federal Council's representations. All these things showed that practising doctors gave a great deal of attention to preventive medicine, and that a public health body was not the body to initiate a scheme of preventive medicine. One of the errors of the National Health and Medical Research Council's report was that the members had not assessed correctly the value of everyday medical practice; Dr. Grieve referred the members of the committee to the issue of THE MEDICAL JOURNAL OF AUSTRALIA of November 15, 1941. At the present time the members of the public were so well educated that if a doctor did not practise preventive medicine, they knew he was not doing his duty and would not go to him. That was one of the values of popular medical education. The committee would be doing a great public service by emphasizing the connexion between foods that were needed and the disparity in price levels. The Government should give its attention to that very important fact. It was putting the cart before the horse if one set out to spend vast sums on hospitals, doctors and health services and the things that were causing ill-health were not being dealt with. A large proportion of children from the more congested areas of Sydney did not receive the right food, partly because of their parents' ignorance, partly because the parents could not afford it.

Referring to Part III of the National Health and Medical Research Council scheme, which dealt with the duties of a district health officer, Dr. Grieve pointed out that such an officer would be equivalent in status to a present director-general of public health. If he was to carry out all the necessary supervision fully, even with a very big staff, he would have more than he could do. Dr. Grieve said that it was impossible to carry on medical practice efficiently from an office. A district health officer would have to set up a very large staff. A striking thing was that the rates of salary provided in the scheme for administrative officers were in excess of those for practising doctors. This provision illustrated the attitude of mind of the men who drew up the report. It was not designed to attract the best class of doctors into the scheme. If a scheme was formulated on the basis that an administrator received more than a man who by long years of study had made himself able to take the responsibility of life and death, it was unlikely to succeed. It was the saving of life that created the strain in medical practice. Too much importance was laid on administration. If it was desired to get practising doctors into the scheme, it was necessary to lay emphasis on the value of the men who looked after sick people. Another example of lack of understanding on the part of the council was the inclusion of the statement that a "certain amount of domiciliary visiting" would be necessary. Dr. Grieve said that under the conditions of national insurance medical practice in England, which were much the same as the conditions of a salaried medical service would be in Australia, the ratio of visits paid to sick people to those paid by patients to the office of the doctor was 1:1·5. That was approximately what happened in practice in Australia; but the council in devising its scheme had acted on the assumption that visiting of sick people would nearly disappear. Dr. Grieve believed on the contrary that visiting, being free, would increase. The council had also underestimated the needs of the population in regard to pathological and X-ray services.

The council had divided the metropolitan area of Sydney into thirty-five districts and had got some curious results; according to their plan, Dr. Grieve's nearest consultation centre would be three and a half miles away, at Ashfield, and there would be another the same distance away, at Newtown, and yet another at Kogarah. All the distances were three and a half miles by direct route. The same state of affairs would apply on the north side of the harbour. The estimate of personnel for general practitioners and consultation centres was grossly inadequate. Dr. Grieve thought that people could not be asked to go long distances to consult doctors; it was certain that they would not go.

The Chairman asked whether Dr. Grieve considered that the public was quite satisfied with the present arrangement. Dr. Grieve did not think that the public was quite satisfied, but that it was satisfied in the main. Doctors could see the weaknesses in the present system, and they had been anxious to improve them for a long time. The members of the public at the present time had a great regard for their own doctors, and, as the psychiatrists pointed out, the remedy for people's troubles was to be found in proper adjustment of their conditions of life.

Senator Arnold asked what difference the finding out of a patient's background would make, for example, if the patient was suffering from heart trouble. Dr. Grieve said that the discovery of his background would make it possible to alter his conditions of life, and often that would make a great difference. The finding out of such things was a large part of medical practice in these days; it was known as psycho-somatic medicine. Under the system proposed by the National Health and Medical Research Council that relationship would be lost.

The Chairman pointed out that Dr. Grieve had given the committee a good deal of criticism of the National Health and Medical Research Council scheme, and asked him to give some exposition of his ideas on the constructive side. Dr. Grieve said that he would start with the outlying areas. He said that he thought agreement was general that practice in those areas was uneconomic. A doctor was unable to make a living there; he had to be helped. In many such areas a subsidized medical service was in operation and worked very well. Dr. Grieve thought that that system should be extended, and he said that the British Medical Association was willing to help. There were not throughout Australia very many areas that would require subsidized medical practitioners. The Tasmanian scheme was constructed along the right lines; its primary purpose was to give a medical service to the outlying areas. Dr. Grieve said that most doctors thought that it would have been even better if the Tasmanian Government had subsidized practices; some Tasmanian doctors were satisfied, others were not. If a doctor's freedom of mind was to be preserved he should not be tied up completely, but should be given a subsidy and made to be true to his contract. Dr. Grieve felt that there should be a great expansion of the Flying Doctor Service; it had been one of the most notable successes in the history of medicine. It would be better to have a flexible flying doctor service for the outlying areas than it would be to have doctors actually stationed in one place. The Chairman asked whether they could be subsidized or salaried men. Dr. Grieve replied that there were very good men in the service at present, and that the organization was very good. It would be possible to build up on it; government representatives could be put on the controlling body, and doctors could be subsidized and their accounts supervised annually. But the service should not be taken over by the Government entirely, because if that was done some of the present good personnel would be lost. The large outback stations were now all getting airfields, or ambulance transport was very much easier.

Dr. Grieve again emphasized the need for protective foods, and suggested the subsidization of popular education. He thought that use could be made of the national broadcasting stations with a "hook-up" through the B class stations to give a talk to the whole of Australia once a week; as a long-term measure that would be extremely valuable. As a result of the Australian Broadcasting Commission's campaign with regard to nutrition, in a few years there would be very few people who would not know the right food to eat, and that knowledge would show in the health of the community in a generation. With regard to the subsidization of X-ray and pathological laboratories, Dr. Grieve said that money should be put aside for the building of institutes in centres throughout the country for such work. That was the point at which the deficiency in present-day medical practice lay. The Chairman asked whether the institutes would be organized units staffed by salaried men. Dr. Grieve suggested that there should be a committee, a governing and directing body in each State. The key men on that should be the representative of the Commonwealth Department of Health, the professor of pathology at the university and a senior X-ray specialist and a representative of the practising doctors. A governing body of personnel should be

built up in that way, so that the work of these institutes would be supervised by men with intense training and experience, who should be given the money to run the institutes. It would then be possible to give free service to those who could not afford to pay and a limited service to intermediate patients; the service could also be open to others. In reply to a further question, Dr. Grieve said that payment should be on a fee per service basis. There was a good illustration in Sydney at the present time in the Medical Eye Service. Patients whose income was within certain limits could go there, either by recommendation or of their own accord. Dr. Grieve also referred to the need for electrocardiography, which was, he pointed out, the work of a specialist. Dr. Grieve said that the upshot of his views would be that on the basis of the existing organization it would be possible to build up a very efficient system for a comparatively limited expenditure. He did not see how the council scheme could come into being; but if it did, the great majority of people would still have their own private doctors.

In answer to a question by Mr. Perkins, Dr. Grieve said that the National Health and Medical Research Council was a body appointed in the first instance ten years earlier to organize medical research with government funds. There were on it in the first instance three officers representing the Commonwealth Health Department, equivalent officers from every State, a representative from the Royal Australasian College of Physicians and one from the Royal Australasian College of Surgeons, representatives from the Australian universities' medical schools and the Federal Council of the British Medical Association in Australia, one layman and one lay woman. There was only one practising doctor on the council.

Dr. Grieve did not agree with Mr. Perkins that the council was right in thinking that an administrator was more important than a practising doctor; but he did agree that a good administrator was not easy to find. It was neither desirable nor necessary to have a large number of administrators in any medical system. In the council's scheme a large number of administrators was proposed, one in each centre, at a salary of £850 per year. The proposal would involve the Commonwealth in an expenditure of about £200,000 per year on such men alone. There were not nearly enough consultation centres. Those who drew up the scheme should have consulted the men who were dealing with it, if they wanted to have a scheme that would benefit the health of the people; practising doctors would have been willing to help.

In answer to further questions by Colonel Ryan concerning a method of providing medical attention for low wage earners and those who had no incomes, Dr. Grieve said that the very poor were provided for by the public hospitals; they received good attention at the out-patient departments. They could get attention in two ways: they might apply at the hospital themselves or they could be sent by a practising doctor outside. Dr. Grieve knew of no case in which a patient had wanted for medical treatment. Colonel Ryan pointed out that he had not said that anyone wanted for medical treatment, but he was concerned at the long delay before people were attended to, and the hours they had to spend in the out-patient departments. Dr. Grieve said that that was due to inadequate hospital personnel and accommodation. Hospital accommodation of all kinds throughout the Commonwealth was inadequate; but Dr. Grieve had taken it as part of the existing health policy in the Commonwealth that hospital accommodation would be improved as finance was available. With regard to the second class of people, those whose incomes were slightly above the basic wage, so that they were not entitled to any sort of free treatment and did not belong to friendly societies, Dr. Grieve said that when they had long, disabling illnesses they should be admitted to hospital; if they were not admitted to hospital, then it would be found in most cases that there was some personal reason. The upper income limits in most hospitals were now reasonably high. As far as medical charges were concerned, Dr. Grieve thought that doctors generally throughout Australia had followed the principle of reducing their fees for poor patients. About five years earlier the New South Wales Branch of the British Medical Association had set up a committee to deal with disputed medical charges; that committee had handled a number of such cases since it had been in existence. Shortly afterwards the New South Wales Government set up a statutory committee for the same purpose, which had up to the present received only one application. Dr. Grieve considered that the friendly societies on the whole gave satisfactory medical service, and that by and large throughout Australia they had done good work.

Dr. Grieve believed that the need at the present time was to build up a system according to the requirements he had outlined, and to do somthing about facilities for diagnosis. The weakness of the present system was that there were not sufficient of such facilities. Colonel Ryan said that, quite apart from his other objections to a salaried medical service, Dr. Grieve had spoken of the importance of the family doctor; Colonel Ryan wondered whether Dr. Grieve could see any reason why the family doctor should cease to exist under a salaried system. Dr. Grieve replied that the continued existence of the family doctor would be impossible, because the system was essentially one for centres of consultation. At each centre there would be a number of doctors who consulted together, with the exception of a limited number of one-man towns. That one man would be the foundation of the organization. He would know that in order to leave the centre and to find advancement he would have to please his superiors. He would thus spend more time on the administrative side. Colonel Ryan suggested that there might be no regulations, and he asked whether that would not allow the doctor to carry on free from any worry. Dr. Grieve replied that the doctor would be appointed by a statutory body. Colonel Ryan suggested that the members of the body might be doctors. Dr. Grieve said that they would be administrative doctors, and it would be necessary to be careful not to cross their track. Colonel Ryan asked whether Dr. Grieve thought it would be possible to set up a salaried service on a modified scale—to set up centres and allow private practice to continue. Dr. Grieve replied that he thought the public would regard the government doctor as inferior, and he himself thought he would be. Colonel Ryan asked Dr. Grieve what type of system he would prefer, assuming that there was a general demand in Australia for a national medical service. Dr. Grieve replied that he did not like any of them very much, but he thought the utmost efficiency would be achieved in a system that kept medical practice untrammelled. He was familiar with the scheme put forward by the Federal Council of the British Medical Association in Australia, and that scheme could be made precise if necessary. He thought that that scheme would be a good one if it was administered by a limited number of administrators and with the minimum number of regulations, so that practising doctors could go on free of thought and of judgement as they were at the present time. The more he thought about it, the more he believed that efficiency would be achieved along the lines he had suggested.

In answer to a question by Senator Cooper, Dr. Grieve said that it would be an advantage to have uniform registration of medical practitioners throughout Australia, and he would add to that also uniform regulations governing food and patent medicines. It was illogical to have more than one authority. With regard to the policy in respect of advertising, Dr. Grieve understood that certain powers had already been taken concerning broadcasting *et cetera*. That was a step in the right direction. Senator Cooper asked whether it would not be possible under a salaried system to overcome the elimination of the family doctor, to which Dr. Grieve objected, and have a number of family doctors to whom the people could go in the city. Dr. Grieve replied that in the National Health and Medical Research Council scheme it was provided that in the city at all centres there should be five doctors whom a patient could consult. It was to be assumed that there would be a clerical staff at all the centres, and that they would follow the usual practice of sending the patients to the doctors in rotation. Dr. Grieve did not think it would be possible to allow a person who went to the centre to say that he wanted to see a certain doctor, so that a limited choice only was possible. Senator Cooper suggested that the scheme might be worked as in a panel system; if one doctor had more than a certain number of patients, the new patient would be sent to the next doctor, and so on. Dr. Grieve said that in private practice that adjusted itself. Senator Cooper suggested that the doctor who had the larger number of patients would seem to be the better doctor, and that fact might be one method of choosing men for promotion under a salaried system. Dr. Grieve said that the other men would have something to say about that; the essence of the scheme was that each doctor should do approximately the same amount of work as the others. Senator Cooper asked whether it would be suitable to lay it down that each doctor should have only a certain number of patients, or whether that should be left to the public. Dr. Grieve said that it should invariably be left to the public. Senator Cooper asked whether under the present system the patient was not limited by the area in which he lived—whether he would go outside it to consult a doctor. Dr. Grieve said that according to the council's scheme, on the other hand,

patients going to a centre would be sent by the clerical staff to the doctors in rotation.

At this stage the Chairman pointed out to Dr. Grieve that he had almost invariably based his replies to questions on the National Health and Medical Research Council scheme, with the object of giving it a sledge-hammer blow. The committee was not so concerned with bowling over that scheme as it was with obtaining the views of the medical profession, based on its members' conclusions and constructive suggestions. No plan proposed by the British Medical Association had been placed before the committee, which wanted to obtain from the medical profession any proposal that it might have for improving the medical service now or after the war. The committee was not accepting the council's scheme as its chapter and verse of proposals for medical services. It had to examine all these proposals. The Chairman asked Dr. Grieve to keep his remarks in mind.

Dr. Grieve said that, although he had had a hand in forming the British Medical Association scheme, he would prefer things to go as he had said in his evidence. He was not satisfied that people generally could financially support any scheme; that was an important point, especially if it was to be paid for by way of contribution. That would cost the people just as much as if the scheme was to be paid for by direct taxation. The taxpayer individually would pay. Senator Cooper, referring again to freedom of choice of doctor, said that some doctors thought that some of their number would be overworked in certain areas. Dr. Grieve thought that some members of the medical profession were very blind over such things. In reply to a further question by Senator Cooper, Dr. Grieve said that under a salaried scheme he thought that, far from having further opportunities for post-graduate work and for increasing their knowledge, the younger members of the profession would have very limited opportunities. Much would depend on the way in which the expenses of post-graduate courses were to be met. If the courses were to be taken out of Australia, the cost would be much greater than had been set out. Country doctors usually took their holidays in the city, and the post-graduate committees in the various States usually organized post-graduate courses for bodies of men coming from the country. The system was working very well. The men who had been brought in as teachers were the best men in the profession.

The Chairman referred again to the group of people who were not covered under the present system, and he asked whether the friendly societies catered only for first-class lives. Dr. Grieve said that applicants for admission to friendly societies had to be certified free from a disease that would lead to their premature death. Dr. Grieve said that he did not reject on medical grounds 1% of people whom he examined for friendly societies. There were, of course, many who knew they had a complaint that would cause their rejection and who did not attempt to gain admission to friendly societies; on the other hand, there were others who did. The Chairman said that he wanted to discover how those people, and those mentioned by Colonel Ryan, could be covered, because they could not afford serious illness. Dr. Grieve said that since the financial depression there had been in operation in New South Wales a scheme whereby a government department paid doctors a quarterly fee for looking after people of that type—people receiving "the dole". Those people received the same scope of service as friendly society members. Such patients were limited in number; Dr. Grieve had half a dozen in his practice. The State Government paid the friendly societies' rate. If the people were seriously ill they could be admitted to hospital; otherwise they could attend at the doctor's surgery. Dr. Grieve said that they formed a much smaller class in the total numbers than one would think. In reply to a question by the Chairman regarding a method of overcoming the difficulty of a man's having to pay fees to several specialists, Dr. Grieve said that there was again a precedent. A few years previously a committee of the New South Wales Branch of the British Medical Association submitted to the State Government Health Department a scheme for the reduction of maternal mortality. It was a good scheme, and part of it was that a free or reduced fee consultant service should be available to any woman whose doctor required a consultant in a maternity case. That panel of available consultants was formed of most of the leading obstetric specialists in Sydney. Any doctor who was in difficulties could obtain the help of a consultant. If a woman was fit to go to hospital, she was sent there, and got her consultant free. If she was not fit to be moved, a consultant would go to her, and she could also have the services of a mobile blood transfusion service. The scheme was financed by the State Government. Blood donors were supplied by the Red Cross Society; Dr. Grieve did not know whether there was a payment for them or not. The principle involved in that scheme could be applied to the question at issue. Another alternative was provided by the example of the Medical Eye Service. Consultants could be induced to nominate themselves for consultations at a reduced rate; that was an extension of the intermediate payment principle that had been so successful.

In reply to a question from the Chairman as to how he would set about relieving the present acute shortage of hospital accommodation throughout Australia, Dr. Grieve said that the problem with regard to city hospitals was that they had not facilities for expansion, and they should not go too high. He thought it desirable to have some expansion of the large city hospitals, but to have a maximum number of beds of 1,000. Another point was that the present hospital position in Sydney could be remedied by the withdrawal of the National Security Regulations. The Chairman said that that might be so, but he was concerned also about normal times; he asked whether Dr. Grieve thought that the hospitals should spread out into the suburbs. Dr. Grieve said that suburban hospitals were already in existence, and they could be extended. Most of them had extra grounds, and modern hospital architecture favoured the erection of low buildings over a wider area. Country hospitals were a fairly simple problem.

National Emergency Measures.

ASSISTANTS IN DOCTORS' HOMES.

THE following letter has been received for publication from the Medical Secretary of the Victorian Branch of the British Medical Association.

[COPY.]

COMMONWEALTH OF AUSTRALIA.

Department of Health,
Canberra,
14th January, 1943.

Dear Dr. Upjohn,

Following consultation with the Director-General of Manpower in the difficult problem of doctors' assistants and domestics, I have now received a letter in the following terms from Mr. Wurth, dated Sydney, 12th January:

> I desire to state that it has been the policy of this Directorate at all times to give special consideration to the needs of Medical Practitioners in relation to the employment of domestic servants, and for your information I recapitulate the various steps taken in regard thereto.
>
> On the 7th September last an instruction was issued to the Deputy Directors-General in all States that women available for Domestic Service should be allocated to the Medical Profession equally with other high priority applicants.
>
> Further, following the promulgation of the Restriction of Employment of Domestic Servants Order on the 31st ultimo, Deputy Directors-General in all States were advised that in considering applications from Doctors for permits to continue to employ domestics, account should be taken of the fact that any assistants engaged in connection with their professional work should not be regarded as domestics.
>
> Further, that in future, while only in exceptional cases should domestics normally be allocated to private households, special consideration should be given the case of doctors carrying on practices in their homes.

Yours faithfully,

(Signed) J. H. L. CUMPSTON, M.D.,
Director-General,
Emergency Medical Service.

Dr. W. G. D. Upjohn, O.B.E.,
Executive Officer,
State Medical Co-Ordination Committee,
426 Albert Street,
Melbourne, C.2.

Correspondence.

THE SELECTION OF MEDICAL STUDENTS.

SIR: The results of first year medicine examinations of the University of Sydney have recently been published, and a survey of these results should give rise to certain misgivings in us for the future.

At the beginning of last year I understand that many more than five hundred entries for the medical course were received, and that from these two hundred and fifty-eight students were accepted for first year. Of these students, approximately one hundred and twenty-five passed and subsequently thirty-two of those that received "posts". This means that one hundred and one students failed.

The numbers accepted to do the course were presumably limited by what were believed to be the minimal requirements to keep up the strength of the profession, and also by the necessity to conform to the ideas of the manpower authorities. Whether this latter meant that the final applications had to be whittled down to two hundred and fifty-eight or whether they were less than expected and had to be built up to that number is unimportant. The important fact is that last year's students were selected to do medicine, and that whereas we might normally expect 10% of failures, actually we had 40%. If students were properly selected and taught there should not be any but accidental failures. The 40% failure would appear to indicate either: (i) A poverty of ideas in the method of selection. (ii) That the teaching was at fault. (iii) That the standard was unduly high. (iv) That one hundred students grossly abused their privilege and did not work.

It is difficult to believe that the last three reasons were responsible for this poor pass of selected students.

In what way are the students selected? For the coming year apparently the student applies for acceptance, stating his name and age and giving his academic qualifications only. That is to say his leaving pass.

Surely this can only mean that a student will be accepted and more or less ranked according to whether he had a good or poor pass. As there is apparently no personal interview or report from headmasters *et cetera*, character, personality and background, and even emotional suitability are not considered in the selection of these students.

I think we have for years now felt that the examination system, although perhaps necessary, provides only a very general and rough standard of capacity, and that competitive examinations are at best a very poor index of a child's future potentialities. Not only that, but the standard of teaching varies enormously throughout the State. Private and public schools place different values on the number and degree of leaving passes achieved. Many schools, I hope, while feeling the necessity to conform to the demand for the standard of a leaving pass, endeavour at the same time to give a more general and broader education. To some extent we can conceive of this wider and more general educational background being an asset to the potential physician. We can feel for the twelve or fourteen year old child of the future whose parents decide that he shall do medicine. We need not harrow our feelings by considering in detail the family and the school attitudes towards the child that will inevitably be induced when such a decision is taken.

One of the worst features of the present situation is that the boy has no free choice of career. Further, if selected, he is told, or at least believes, that he has only one chance, and that if he fails he is finished. He may not repeat. Whether this impression, to put the best construction on it, was given more or less for disciplinary reasons or not, we cannot feel that it would create an easy confidence in the candidate at the time of examination. Nor can we feel it right to do so particularly in his most difficult year when the student is only just learning to be a student, and is having to adjust himself to his most difficult phase of educational development—the transition from strong disciplinary external control as exercised at school, to the undirected and self-controlled atmosphere of the university.

To select the future physicians of the next fifty years on the basis of a leaving pass must be considered not only careless and haphazard but dangerous.

These are days of hurriedly passed and far-reaching regulations whose repercussions are not always foreseen, and I feel that the method of selection of first year medical students might be given more thought and consideration. We are told that these measures are only temporary. Rubbish. The measures may be temporary, but for the individual and the public the effect is permanent. The interference with his choice of career and the effect on him if selected and failed surely cannot be considered temporary. If we are trending towards selection for vocations, as we undoubtedly are, then it is high time that we put our methods of selection on as sound a basis as possible.

From the practical point of view surely the child with a good educational background whose character and personality can be vouched for by school principals, but whose leaving pass was only six B's (not an absolute indication of the intelligence quotient), might be a better selection than the boy with a high leaving pass who was selected and failed in every subject because of personality and emotional difficulties. Again it would seem anomalous that a boy should matriculate, but fail in his leaving, and yet achieve honours in first year medicine.

A rating joining the Navy in some of the special branches is not accepted if he has not his school pass. He is given an intelligence test and he is also personally interviewed. Last but not least, he is thoroughly examined physically. Surely our potential physicians could expect at least as much examination and investigation of their claims as this.

As a constructive suggestion, has the possibility of calling on the university school of psychology for help in the problem of selection been considered? Further, it is conceivable that as examinations are apparently a necessary evil, perhaps term examination would provide a stimulus and incentive for more even work throughout the year, and could be used as a more just eliminative method. It may also prevent such a huge percentage of wasted effort of time and money as represented by the present large number of failures. This assumes, of course, that if a student is selected to do medicine he is considered to have the necessary intellectual capacity to pass if properly directed.

Would it be too naïve to say in conclusion that none of my children are doing, nor are they of an age to contemplate doing, medicine.

Yours, etc.,

CEDRIC SWANTON.

British Medical Association House,
135, Macquarie Street,
Sydney.
February 3, 1943.

THE FUTURE OF MEDICAL PRACTICE.

SIR: Dr. Clark in your issue dated January 30, 1943, extols the "capitation system" in vogue at Newcastle. This system, which includes about 80% of the population, is merely the old private club practice under a new guise, and is the lowest form of medical practice.

It took its origin in the slums of Durham one hundred years ago, and about fifteen years ago the British Medical Association and the Friendly Societies Association combined to crush it. The Central Northern Medical Association was obdurate and this pernicious system is still in force. It has all the vices and none of the virtues, safeguards and organization of orthodox lodge practice.

I have friends in the Newcastle area. I have been told that it is chaotic, as a doctor practising at, say, Adamstown will have patients at Smedmore and *vice versa*. The competition under these conditions is cut-throat and is responsible for the ill-will which is, unfortunately, so prevalent and to which I, as an outsider, am privy.

Yours, etc.,

C. J. B. ARMSTRONG.

Newcastle Street,
East Maitland.
February 2, 1943.

THE LATE GEORGE HENRY ABBOTT.

SIR: May I be permitted to pay a further tribute to the memory of the late Dr. G. Abbott, being stimulated thereby by the obituary in a recent issue of THE MEDICAL JOURNAL OF AUSTRALIA; and I think my feelings are those of my student contemporaries.

Firstly, we had a fond personal regard for him; the nurses, too, perhaps wearied of long waiting for his arrival in the theatre, would melt at his first smile.

Well known of him, too, was his operating slowness and competition was sometimes keen amongst us students who could tell of the longest operations. We did believe, and I still do, that his patients did better than anyone else's, and

that the time spent was due largely to a determination to give the patient everything, and to his own time nothing.

I especially liked the privilege of being student assistant to him, and firmly believe that the saying (still, I hope, taught to students) "that more mistakes are made by not looking than from not knowing" should be supplemented by "and still more by haste than slowness".

For the same reason, too, I believe the "slow" little private hospital where the surgeon and anæsthetist have to help carry the patient back to bed, is ever so much better for the patient than the great hustling institution.

Dr. Abbott sympathetically observed his patients after operation, we may be sure, for who of his time does not remember his half-hour's sewing up and the remark to this effect, "If you had seen how some patients vomit after coming out of anæsthetic, you would consider no time wasted in sewing him up securely"? And we all must have preferred to be sewn up by him. Added to this there was the universal student belief that even if he was long, still always (always, not usually) at the end of that long operation there was a perfect job.

Lastly, I do not remember him ever showing anger; perhaps he did, being human, but if so, the memory is long submerged in the vision of his gentle manner and kindly smile. There will be thousands of patients with the same vision.

Yours, etc.,

CRAWFORD MCKELLAR.

143, Macquarie Street,
Sydney.
February 5, 1943.

Obituary.

RALPH OSMOND WILLIAMS.

IN the first week of December, 1942, Dr. Ralph Osmond Williams, as representative of the Central Southern Medical Association, attended the annual meeting of delegates of the affiliated local associations of members of the New South Wales Branch of the British Medical Association with the Branch Council. He seemed to be in his usual health and entered with zest into the discussions. The news of his death on December 19, already recorded in these pages, came as a shock to his *confrères*. His death was due to cerebral hæmorrhage, which was the result of idiopathic purpura. He had become widely known as a sound and reliable practitioner in and around Goulburn, where he lived, and he was held in high esteem by practitioners in his own district and by members of the Association in different parts of the State, with whom, from time to time, he came in contact.

Ralph Osmond Williams was born on July 27, 1880, in South Africa. His father was a consulting engineer, but when it was decided that the boy should study medicine, he went to London and became attached to the medical school at King's College Hospital. He graduated as Bachelor of Medicine of the University of London, became a resident medical officer at Guy's Hospital, and finally acquired the degree of Doctor of Medicine of his university. After engaging in *locum tenens* work for a while, he induced his family to come to Australia, and in 1909 took up practice in Goulburn, where he remained till his death. The story of his work in Goulburn is one of devotion to duty and of adherence to the ethical principles of his profession. His reputation extended far beyond the immediate district where he lived, and though he was not an Australian graduate in medicine, he gained the confidence of Australian people and could hold it. He took an active part in the affairs of the New South Wales Branch of the British Medical Association, and was one of the first members of the Central Southern Medical Association, serving for a while as its president. For the last ten years he had been the delegate to the annual conferences between the local associations and the Branch Council. When the National Emergency Services were created Williams was put in charge of the Goulburn area. He took his duties seriously and was untiring in his giving of lectures and first-aid instruction to make the medical side of the organization in Goulburn efficient. In 1940 he was elected to the Goulburn City Council and was as enthusiastic and efficient in the municipal sphere as he had always been in that of medicine. In 1920 he became interested in a grazing property and, with the help of his brother, tried by scientific methods to improve its value. One of his colleagues in Goulburn writes that he had a keen sense of humour and that he was also able to prevent cares and worries from interfering with his cheerful disposition. In short, it may be said of Ralph Osmond Williams that he was one of the general practitioners serving in the country who have set a high standard in Australian medical practice and created its reputation for character and worth. The sympathy of many will be offered to his wife and children who survive him. His son is a pilot-officer serving with the Royal Australian Air Force.

ROBERT GEORGE REID.

We regret to announce the death of Dr. Robert George Reid, of East St. Kilda, which occurred on January 30, 1943, at Melbourne.

Australian Medical Board Proceedings.

SOUTH AUSTRALIA.

The undermentioned have been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1919-1935, of South Australia, as duly qualified medical practitioners:

Gardiner, Philippa Margaret, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Winter, Karl Berthold, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Nicholls, James Herschel, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Swaine, Cyril David, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Richards, Norman Alfred, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Rischbieth, Henry George, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Packer, Arthur Dudley, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Sobey, Reginald Roberts, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Dearlove, Thomas Pearce, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Hannon, Dennis Francis, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Lyons, Ruth, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Sawers, Ronald John, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Dawson, Michael Dean, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Harris, David Hall, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
James, Colin Thomas, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Porter, Kingsley Clarence, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Anderson, Dorothy Kathleen Ross, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Steele, Robert Thornborough, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Blackburn, Harold Stewart, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Wilhelm, Donald Lancelot, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.

The undermentioned have been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1919-1935, of South Australia, as duly qualified medical practitioners (annual registration):

Bauer, Franz, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Guenther, John Irving, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Cocks, Edward Desmond, M.B., B.S., 1942 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.
Simons, Alfred, M.B., B.S., 1942 (Univ. Adelaide), Adelaide.
Lippay, Franz Rudolf, M.B., B.S., 1942 (Univ. Adelaide), University of Adelaide.
Brown, Kenneth Barnden, M.B., B.S., Western Australia.
Courtney, Charles Arthur, L.L.M.R.C.P. and S., 1893 (Edinburgh), L.F.P.S., 1893 (Glasgow).

The undermentioned, who was previously granted provisional registration, has now been granted annual registration:

Grant, Wemyss Gordon, M.B., B.S., 1924 (Univ. Melbourne), Finsbury, South Australia.

The undermentioned, who were previously granted annual registration, have now been granted perpetual registration:

Heddle, Robert Charles, Adelaide.
Urban, Friedrich, Adelaide.
Texler, Eva, Hutt Street, Adelaide.
Texler, Karl Maria, Hutt Street, Adelaide.
Ryan, Naomi Rosslyn, Royal Adelaide Hospital, Adelaide.

The following additional qualification has been registered:

de Vedas, Jack (D.T.M., 1940, Univ. Sydney), M.R.A.C.P., 1942, Adelaide.

Naval, Military and Air Force.

CASUALTIES.

ACCORDING to the casualty list received on February 3, 1943, Colonel D. C. Pigdon, A.A.M.C., Narre Warren, and Colonel E. R. White, A.A.M.C., Toorak, who were previously reported missing, believed prisoners of war, are now reported to be prisoners of war.

According to the casualty list received on February 3, 1943, Captain C. R. Boyce, A.A.M.C., Goodna, and Major B. L. W. Clarke, A.A.M.C., Ascot, Brisbane, who were previously reported missing, are now reported to be prisoners of war.

Nominations and Elections.

The undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

Adderton, Dorothy Isabel Orion, M.B., B.S., 1941 (Univ. Sydney), 4, Pritchard Street, Auburn.
Gee, Alban Harvey, M.B., B.S., 1937 (Univ. Sydney), 39, Barker Road, Strathfield.
Himmelhoch, Elizabeth, M.B., B.S., 1942 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
Hipsley, Percy Donald, M.B., B.S., 1942 (Univ. Sydney), 134, Victoria Road, Bellevue Hill.
Larkins, Nicholas, M.B., B.S., 1938 (Univ. Sydney), 11, Caversham Court, Billyard Avenue, Elizabeth Bay.
Michael, Norman Joseph, M.B., B.S., 1942 (Univ. Sydney), Saint Vincent's Hospital, Darlinghurst.
Palmer, Alexander Allen, M.B., B.S., 1941 (Univ. Sydney), "Cottesloe", Main Road, Bulli (Australian Imperial Force).
Parker-Smith, Winston, M.B., 1942 (Univ. Sydney), 31, Wycombe Road, Neutral Bay.
Priddis, Kevin Walter, M.B., B.S., 1938 (Univ. Sydney), Box 94, Coonabarabran (prisoner of war).
Read, Francis Harold, M.B., B.S., 1941 (Univ. Sydney), c.o. Dr. B. A. Wade, 1, Clanville Road, Roseville (Royal Australian Air Force).
Waters, James Howard Stewart, M.B., B.S., 1941 (Univ. Sydney), Balmain and District Hospital, Booth Street, Balmain.

Medical Appointments.

Dr. Norman Stannus Gunning and Dr. Esmond Frank West have been appointed Honorary Clinical Assistants (Orthopædic Section) at the Royal Adelaide Hospital, Adelaide, South Australia.

Dr. John Edwin Bateman has been appointed Honorary Clinical Assistant (Vaccine and Asthma Section) at the Royal Adelaide Hospital, Adelaide, South Australia.

Dr. Henry Edward Pellew and Dr. Wilbur Francis Joynt have been appointed Honorary Clinical Assistants (Gynæcological Section) at the Royal Adelaide Hospital, Adelaide, South Australia.

Dr. James David Fotheringham and Dr. David Wickham Shepherd have been appointed Honorary Clinical Assistants (Physiology Department) at the Royal Adelaide Hospital, Adelaide, South Australia.

Books Received.

"The British Encyclopædia of Medical Practice, including Medicine, Surgery, Obstetrics, Gynæcology and other Special Subjects, Surveys and Abstracts, 1941-2", under the general editorship of Sir Humphry Rolleston, Bt., G.C.V.O., K.C.B., M.D., D.Sc., D.C.L., LL.D.; 1942. London: Butterworth and Company (Publishers), Limited. Super royal 8vo, pp. 487, with illustrations. Price: 42s. (Australian).

Diary for the Month.

FEB. 23.—New South Wales Branch, B.M.A.: Medical Politics Committee.
FEB. 25.—South Australian Branch, B.M.A.: Branch.
FEB. 26.—Queensland Branch, B.M.A.: Council.
MAR. 2.—New South Wales Branch, B.M.A.: Organization and Science Committee.
MAR. 3.—Western Australian Branch, B.M.A.: Council.
MAR. 4.—New South Wales Branch, B.M.A.: Special Groups Committee.
MAR. 4.—South Australian Branch, B.M.A.: Council.
MAR. 5.—Queensland Branch, B.M.A.: Branch.
MAR. 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee. Ethics Committee.
MAR. 9.—Tasmanian Branch, B.M.A.: Branch.
MAR. 12.—Queensland Branch, B.M.A.: Council.
MAR. 15.—Federal Council, B.M.A.: Meeting at Melbourne.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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